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Practical Strategies for Educating Nurses in India to Improve Care of Patients with HIV and AIDS

Assessment of Knowledge of Nurses in the Pre, Post, and Twelve-Month Follow-up and Assessment of Attitude of Nurses at Twelve-Month Follow-up of the Train-the-Trainer Research Program in Coimbatore, India

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Nursing

by

Christiana Baskaran

2014

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ABSTRACT OF THE DISSERTATION

Practical Strategies for Educating Nurses in India to Improve Care of Patients with HIV and AIDS

by

Christiana Baskaran

Doctor of Philosophy in Nursing

University of California, Los Angeles, 2014

Professor Emeritus Donna McNeese-Smith, Chair

Background: Approximately 2.4 million people presently living in India have HIV/AIDS. Nurses have a vital role in the prevention and treatment of HIV/AIDS; therefore, education of nurses is imperative to manage HIV/AIDS in India. Very little information is available about nurses' knowledge in India. **Purpose**: The purpose of this study was to examine the effectiveness of a train-the-trainer (TTT) program in improving nurses' knowledge and assessing attitude about HIV/AIDS among nurses employed in three private hospitals in Coimbatore, India. **Methodology**: The study used a one group pretest, post-test design, and time series at 12-months post-test. The Lead Trainers (LT) were selected from PSG College of Nursing who trained 47 Primary Trainers (PT) for three days. At the next level, the 47 PT trained 848 Secondary Trainers (ST) for two days. A 12-months follow-up post-test was conducted among 471 ST.

Results: The results of the current study revealed that cognitive, transmission, and overall knowledge of HIV/AIDS improved significantly from pre-test to post-test for the original sample of 848 subjects. At the 12-months post-test, the scores decreased significantly from the immediate post-test but were still significantly higher than the pre-test scores for the remaining 471 participants; paired t-test at $p<0.001$. Nurses from the current study showed a moderately positive attitude about HIV/AIDS patients at 12-months post- test. Nurses' educational qualification had an association in the ANOVA and a predictive relationship in the regression with cognitive, transmission, overall knowledge, and empathy items of attitude of HIV/AIDS in the current study. **Discussion**: This research once again demonstrated that the TTT program educated a large number of nurses and significantly improved their knowledge of HIV/AIDS in a short time. This study also improved the gap in the knowledge that had not been covered in the nursing curriculum. Education of the nurses, specifically BSN-prepared nurses, had a significantly stronger relationship with knowledge and attitude. However, results also showed that continuing education about HIV/AIDS is important for the nurses in India.

The dissertation of Christiana Baskaran is approved.

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2014

DEDICATION

This work is dedicated to my lord and savior “Jesus Christ” for enabling me to successfully complete this dissertation,

To my husband Baskaran Ambalavanan for his unflinching support and motivation, to the memory of my father Manesan Devasagayam, my mother Alice Rukmani Manesan, for instilling a desire for life-long learning and encouragement,

To Dr. Donna McNeese-Smith, for her dedication, commitment, and passion for teaching and mentoring me tirelessly.

and

To Dr. Adeline M. Nyamathi, for her commitment to HIV/AIDS research in the US, India, and other countries, for allowing me to conduct this research, and for guiding me.

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Chapter 1

Introduction

Background and Significance of the Problem

Approximately one billion people live in India, and it is considered to be one of the most densely populated and largest countries in the world. Based on the Joint United Nations Program on Human Immunodeficiency Virus **(**HIV**)/**Acquired Immune Deficiency Syndrome (AIDS) (UNAIDS) report, India has 2.4 million people who are presently living with HIV/AIDS (UNAIDS, 2010). This became apparent later in India than in other countries. Infection rates started rising from the 1990s, and now the epidemic affects all categories of Indian people, not just the sex workers and truck drivers with which it was initially associated. In a country where poor health, illiteracy, and poverty are abundant, the rapid HIV spread poses a discouraging challenge to the country's health (UNAIDS, 2010).

Tamil Nadu has a current population of 72 million (Census, 2011), and is considered to be the seventh most highly populated state in India. In the 1990s, almost 0.5 million people were infected with HIV infection in this state. People living in the villages had three times greater infection rates than people living in the cities (UNAIDS, 2000). Thereafter, the Tamil Nadu government initiated an AIDS society, which focused on HIV prevention programs in addressing stigma and ignorance about HIV, initiating a campaign for safe-sex, and encouraging use of condoms. A survey conducted during 1996 and 1998 revealed that the number of men reporting the use of high-risk sexual behaviors had decreased. For example, casual sex was decreased among truckers from 48% in 1996 to 32% in 1998. Use of condoms at last time among truckers was 46% in 1996 and had increased to 67% in 1998. Similarly casual sex had decreased among factory workers from 15 % in 1996 to 8% in 1998 while condom use among factory workers had

increased from 18% in 1996 to 50% in 1998 (UNAIDS, 2000). According to the National Family Health Survey-3 in 2007 (NFHS-3), 62% of men reported using a condom when they had paid sex last time; less than 1% engaged in paid sex during the 12 months prior to the survey (NFHS-3, 2007; UNAIDS, 2008). However, Kumar et al., stated that 4% of women and 13% of men engaged in casual sex (Kumar et al., 2006). According to the World Bank data in 2012, the Tamil Nadu state had 0.15 million people infected with HIV, and the HIV prevalence had notably declined from 0.58% in 2007 to 0.33% in 2009 (HIV/AIDS in India, 2012).

According to the National AIDS Control Organization (NACO), HIV incidence among pregnant women had decreased from 1.25% during 1995 and 1997 to 0.25% by 2007. However, based on HIV sentinel surveillance and estimation in India in the year 2007, HIV incidence among injection drug users was 16.8%, which was considered the third highest among all states reporting this issue. HIV incidence among homosexual men was 6.6% and among female sex workers it was 4.7% respectively (NACO, 2007).

"Beyond HIV/AIDS," is a medical phrase referring to the problems beyond the physical disorder; this phenomenon stands for a detailed social construct associated with stigma, fear, and vulnerability among the public. All over the globe, people living with HIV/AIDS (PLWHA) are exposed to stigmatization in the place of work, discrimination within the family, and in communities. In India and other countries, discrimination by health care workers has been well-documented in other published studies (Devroey et al., 2003; Pisal et al., 2007; Reis et al., 2005; UNAIDS, 2001). For PLWHA, the awareness of stigma in health care affects their health-seeking actions by preventing individuals from getting essential care. For people whose HIV status is unknown or doubtful, such stigma may stop them from being HIV tested or looking for information on how to protect themselves from HIV/AIDS (Pisal et al., 2007).

Current Status of Knowledge about HIV/AIDS among Health Care Workers

Among all health care workers, nurses have the most vital role in direct patient care, managing all aspects of care and treatment of patients with HIV/AIDS. In spite of their key role, nurses are often ill prepared to manage the various challenges of care to HIV/AIDS patients, and are often ignored with respect to updates, and training on emerging diseases (Kumar et al., 2002; Pisal et al., 2007; Vati, 2001). By nature of the profession, health care workers are at higher risk of getting an infection directly from patients or through an indirect contact with infected specimens. Health care workers (HCWs) globally are at 0.25% -0.30% per exposure risk of getting HIV infection through contact with infected blood or needle sticks; this should be addressed directly by the health care system (Pisal et al., 2007; Regez, 2005).

Previous studies have explained that health care workers were negative, ill-informed, fearful of getting AIDS, and discriminatory in their approach toward PLWHA (Blumenfield et al., 1987; Kumar et al., 2002; Pisal et al., 2007; Vati, 2001). Studies conducted in India revealed that frequent in-service education is needed for nurses to deal with this problem (Datta, 1997; Lal et al., 1998; Vati, 2001). Although, there is little information available in the literature related to programs aimed at decreasing discrimination and stigma in health care (Pisal et al., 2007; Reis et al., 2005; Tierney, 1995), a few studies conducted in India, the United States (US), and other countries have revealed the positive effects of various educational programs for nurses on HIV/AIDS-related knowledge and attitudes (Brimmer et al., 2008; Brown et al., 1990; Flaskerud et al., 1989; Nyamathi et al., 2008a; Nyamathi et al., 2008b; Nyamathi et al., 2010; Sibbald et al., 1991; Wertz, 1987).

A survey on HIV/AIDS, based on knowledge, attitudes, and practices of physicians, medical students, nurses, midwives, and auxiliary nurses in Tamatave (Madagascar) revealed

that knowledge about HIV transmission was poor (Hentgen, 2002). A total of 75% of their HCWs believed that an HIV-infected mother always gives birth to an infected baby (Nyamathi et al., 2008a). About 75% of the health care workers did not counsel a patient to test for HIV, and most of the physicians, medical students, nurses, midwives, and auxiliary nurses (79%) thought they were at risk of getting HIV, mainly through work-related exposure. Physicians and paramedical health workers also had negative attitudes toward HIV-infected patients. This study revealed the knowledge gaps about HIV infection among HCWs (Hentgen, 2002).

A study was conducted to assess the knowledge, attitude, and practice of universal precautions among 120 HCWs in Benin-city, Nigeria. The HCWs included doctors from obstetrics and gynecology, surgery departments, and nurses from emergency rooms, labor rooms, labor operating rooms, main operating rooms, and family planning clinics. The study revealed that 25% of the participants thought that HIV could be transmitted by urine, saliva, feces, and vomit. Almost 40% of the HCWs showed a discriminatory attitude towards PLWHA (Aisien & Shobowale, 2005). Because of the stigma and discrimination against those with HIV/AIDS, patients often did not seek or follow up with care. Therefore a satisfactory response to the healthcare epidemic could not be made (Mahajan et al., 2008).

Though the nurses were aware of the etiology and immunologic disturbance of HIV, few nurses were aware that teenagers are at risk of getting HIV infection; that HIV infection cannot be determined by looking at an individual; or whether there is vaccine availability for HIV infections. Only 46%-55% of the nurses responded correctly that a person infected with HIV virus may not have AIDS, or that a person with AIDS can appear normal or feel good (Nyamathi et al., 2008b). The above findings suggest that definitive knowledge and attitude gaps exist among health care providers in India.

As HIV care and treatment is growing rapidly, training and education of health care workers is vital to providing high quality care. A greater number of health workers need HIV training; yet few countries have a detailed training plan or a clear evaluation of ongoing training requirements, much less a plan to implement training on a bigger scale, or sufficient funds needed for training (McCarthy et al., 2006). It is difficult for resource-limited countries to have adequate internal funding to deal with training needs and also face the demands of fast paced HIV-treatment development. Hence, most countries with few resources have worked together with external partners to prepare the educational programs, and/or to bring experts from other countries to conduct training (McCarthy et al., 2006). The ever growing HIV/AIDS epidemic demands nurses to increase their knowledge about this destructive illness to give effective prevention and care to HIV/AIDS patients (Williams et al., 2006).

Impact of Nursing Education about HIV Knowledge, Attitudes, and Practices

A study conducted among nurses employed at a government hospital in Delhi, India, to assess the usefulness of a train-the-trainer (TTT) program revealed there was a significant increase in the cognitive, transmission, and overall HIV/AIDS knowledge among all associates who participated in the study. The results also showed that nurses gained significant knowledge of HIV through TTT programs in India (Nyamathi et al., 2008b) and Vietnam (Williams et al., 2013).

Clearly, a TTT model may present a well-organized educational approach that could assist health care workers with sharing information about the disease in terms of prevention, clinical manifestations, signs and symptoms of HIV, impact of the disease, and counseling needed. The findings also revealed that more education is needed for nurses regarding HIV through educational programs that focus on HIV transmission and the treatment of PLWHA. It is

also important to examine various methods of education, or a mixture of methods, to find an efficient method to transfer this knowledge. Cost-effective analysis would also be recommended in terms of TTT modalities versus the more conventional models (Nyamathi et al., 2008b).

Statement of the Problem

In India, most health care centers are inadequately prepared to handle HIV/AIDS patients. A TTT offers great hope for educating large numbers of nurses in developing countries (Pisal et al., 2007). TTT programs are designed to educate individuals, community members, and health care professionals on HIV prevention strategies. These trainees are provided with information and skills to train other community members or professionals on HIV prevention strategies (Porche & Swayzer III, 2003).

Purpose of the study

The purpose of this study was to examine the effectiveness of a TTT program in improving nurses' knowledge on HIV/AIDS among the study participants (nurses) employed in three private hospitals in Coimbatore, Tamil Nadu, India. A TTT program was used as an innovative strategy for educating nurses to improve their knowledge of HIV/AIDS. The present study assessed the baseline pre-test, and immediate post-test data collected from Dr. Nyamathi's research. A 12-month follow-up component was added to assess the long-term effectiveness of this previously conducted TTT program. This study has two major objectives: 1) assess the retention, among nurses, of knowledge taught twelve months previously in the nurse-led-TTT program on HIV/AIDS; and 2) assess the attitude among nurses, taught twelve months previously in the nurse-led-TTT program on HIV/AIDS.

Specific Aims for Immediate Outcome

1. To compare the retention of cognitive HIV/AIDS knowledge and the HIV/AIDS transmission knowledge among nurses, from the pre-test to immediate post-test, after attending the TTT program.
2. Post TTT intervention, identify relationships between demographic characteristics, (i.e., educational background, years of experience, nursing unit on which they currently work, and affiliated hospital) in terms of retention of cognitive HIV/AIDS knowledge and the HIV/AIDS transmission knowledge among nurses, from the pre-test to immediate post-test, after attending the TTT program.

Specific Aims for Twelve Months Later Outcome

1. To compare the retention of cognitive HIV/AIDS knowledge and the HIV/AIDS transmission knowledge among nurses, from the pre-test to immediate post-test, and twelve month following the post-test, after attending the TTT program.
2. To assess the attitude of nurses about HIV/AIDS twelve month later.
3. To identify if relationships exist between demographic characteristics and the retention of cognitive HIV/AIDS knowledge and the HIV/AIDS transmission knowledge among nurses at twelve months following the post-test.
4. To identify if relationships exist between demographic characteristics, and the attitude of nurses.

Hypotheses

Immediate Outcome.

1. Nurses will have improved cognitive HIV/AIDS knowledge and HIV/AIDS transmission knowledge from pre-test to immediate post-test after attending

the TTT program.

Twelve Months Later Outcome.

1. Nurses will continue to have improved cognitive HIV/AIDS knowledge and AIDS transmission knowledge from pre-test to immediate post-test and twelve months following the post-test after attending the TTT program.
2. Nurses will have a positive attitude about HIV/AIDS patients at twelve months following the post-test.

Chapter 2

Review of Literature

Practical Strategies for Educating Nurses in India to Improve Care of Patients with HIV and AIDS

Introduction

According to the United National Program on Human Immunodeficiency Virus **(**HIV**)** /Acquired Immune Deficiency Syndrome (AIDS) (UNAIDS) and the National AIDS Control Organization (NACO), India has an estimated population of one billion, and is considered to be the second largest population in the world. It has approximately 2.4 million people infected with HIV(HIV/AIDS in India, 2012; NACO, 2005a, 2005b; UNAIDS, 2007). Half of India's population involves sexually active adults, and HIV infection is present in every state and territory (AIDS Virus Education and Research Trust (AVERT) (AVERT, 2009). In India, the spread of HIV has varied and the severity of this epidemic is increased in the Southern States (NACO, 2005). Reports from the National Family Health Survey 3 (NFHS-3) (2005-2006), showed that HIV prevalence in adults varied in six states from 0.97% in Andhra Pradesh, 0.62% in Maharashtra, 0.69% in Karnataka, 0.34% in Tamil Nadu, 1.13% in Manipur, and 0.07% in Uttar Pradesh, (NACO, 2005a; NFHS-3, 2007). In the southern states, HIV is primarily spread through heterosexual contact. Infections in the north-east regions are mainly seen among injection drug users (IDUs) and active sex workers (NACO, 2009). In a country where poor health, illiteracy, and poverty are abundant, the rapid HIV spread poses a discouraging challenge to the country's health (UNAIDS, 2010).

In India, the first HIV patient was diagnosed in the year 1986, among the active sex workers in Chennai. Several screening centers were quickly established throughout India. To

begin with, the focus was on screening students from other countries, then moved on to screening blood banks; then the focus was on setting up HIV screening centers in major cities by 1987 (Karkar, 2001). A National AIDS Control Program (NACP) was launched in 1987 which covered surveillance, screening blood and blood products, and providing health education. The NACO was initiated in 1992 which managed India's National AIDS Program, and created the policy, prevention and control program (Bhupesh, 1992).

According to NACO's 2011-12 annual report, India has 2.5 million people living with HIV/AIDS (PLWHA) which means globally, India has the third largest number of PLWHA (NACO, 2011). However, this reports total number of PLWHA and not a rate that can be compared between and among countries. It was revealed, in the 2008-09 HIV Sentinel Surveillance, that there has been an overall decrease in the adult HIV occurrence (new infections), and HIV prevalence in India. HIV prevalence among adults decreased from 0.41% in 2000 to 0.31% in 2009, and new HIV infections were decreased by 56% over a decade. In 2000 the new infection rate was 0.27 million, and decreased to 0.12 million in 2009 (NACO, 2011-12).

Definition of HIV/ AIDS

The progression of HIV infection eventually leads to AIDS. The Center for Disease Control and Prevention (CDC) and Morbidity and Mortality Weekly Report **(**MMWR**)** officially defined and established the criteria for the diagnosis of AIDS, and is also responsible for monitoring the spread of AIDS throughout the United States. The definition also included 26 clinical conditions which commonly affect people with progressive HIV disease, and these conditions are called opportunistic infections (OIs) that generally affect those with low immunity. In people with AIDS, these OIs can be severe or fatal because of the individual's low

immunity; the body cannot withstand certain viruses, fungi, bacteria, parasites, and other microorganisms (CDC, 2013; MMWR, 2008).

AIDS is defined by CDC as all HIV-infected individuals who have less than 200 CD4 positive T cells (abbreviated CD4+T cells) per cubic millimeter (mm^3) of blood (healthy adults usually have CD4 positive T-cell counts of 600-1,500/mm^3) (Blatt et al., 1993; MMWR, 1992, 1994, 2008; NIAID, 2009; Pirzada et al., 2006). The CDC introduced a new staging system now to define HIV infection: stage one, two, three, and stage unknown. A confirmatory diagnosis can be made only if the person comes under one of the four HIV stages and meets the laboratory criteria for diagnosis (CDC, 2013).

Current Status of HIV Knowledge among Nurses and other Health Care Professionals in India

A survey was performed among 75 experienced nurses who attended a workshop in Calcutta, India, to assess their knowledge about the spread, prevention, and attitude towards HIV/AIDS as well as their readiness to provide care. The nurses demonstrated an acceptable level of transmission knowledge (mean percentage score 74.3), but had misconceptions in the areas of disinfection and preventive measures (Datta and Bandyopadhyay, 1997). Overall, 33% had negative beliefs towards HIV/AIDS and 24% were hesitant to perform care for HIV-infected patients. There was a positive correlation seen between knowledge and attitude ($r = .32$). The lack of knowledge in some aspects of HIV led to the fear of contracting the disease, as well as a negative outlook, which may lead to poor patient care. It was recommended that in-service training be continuously provided to remove the misunderstandings and establish positive and non-discriminatory attitudes (Datta and Bandyopadhyay, 1997).

A survey with a cross-sectional design was conducted among 266 Health Care Workers (HCWs) from seven small communities in northern India. Information was collected in regards to adherence to universal precautions (UPs) and other relevant variables that could possibly affect compliance (e.g., perception of risk and safety climate, knowledge of blood borne pathogen transmission, barriers to safe practice, and demographic information). The majority of respondents were nursing students or nurses (32.7% nursing students, 28.5% general nurse midwives [GNMs], and 14.1% auxiliary nurse midwives [ANMs], but also included 12.5% doctors, 6.1% were laboratory workers, 4.9% others (multipurpose workers, dental assistants, ophthalmic, and operating theatre technicians), and 1.1% dentists. The findings of the study suggested that rural north Indian HCWs practice UPs without understanding the underlying principles. The use of Personal Protective Equipment (PPE) (masks, gloves, and eye protection), the separate disposal of sharp instruments, the prompt cleaning of blood spills and proper hand washing were a few parts of UPs which were well adapted by HCWs (Kermode et al., 2005).

However, 17% of HCWs believed that recapping of needles was an acceptable practice, suggesting that inadequate understanding of sharps safety was present. In addition, the recapping of needles (using a one-handed method) was considered safe, in places where only poor quality sharp disposal methods were present. Surprisingly, the study showed that 88% of HCWs thought that UPs and barrier nursing were the same, and 48% believed that protection against blood or blood products was only needed when handling patients with HIV/AIDS. The survey showed that 50% believed that it was not realistic to consider all blood as infectious, which may reflect the selective application of UPs. These HCWs appear to be possibly confused and ambivalent about the universal application of UPs (Kermode et al., 2005).

Based on the known correlation between needle recapping and percutaneous injury, 40% reported that they occasionally recap needles in contrast with 27% of American HCWs Compared to a similar study performed among American HCWs, Indian HCWs reported relatively overall poor compliance levels with the use of PPE. Only 67% wore gloves, 59% wore masks, 54% wore plastic aprons, and 32% wore eye protection in comparison to the United States where 97% wore gloves, 56% wore masks, 62% wore plastic aprons, and 63% wore eye protection. A reason for this difference in compliance with rural Indian HCWs compared to American HCWs, could be the lack of available resources for PPE and the level of knowledge about HIV/AIDS (Gershon et al., 1995; Kermode et al., 2005). These studies also indicate that Indian nurses were in need of further knowledge about the transmission of HIV/AIDS.

Another study was performed in Pune, India to assess knowledge, attitude, and practice (KAP) of UPs among 203 health care professionals such as nurses, residents, and consultants as well as janitors. The study revealed that 70% of nursing staff, 30% of residents, and 3.7% of consultants thought that being HIV positive and having AIDS were one and the same; 87.5% did not use PPE while drawing blood, starting IV lines, or while handling blood spills. Almost 14% of residents did not know that HIV is transmitted through blood, and 30% of consultants preferred to avoid any contact with HIV positive patients (Menon, 1994; Nyamathi et al., 2008b). While to some extent lack of supplies contributes to noncompliance with use of PPE, above findings clearly indicate there is a definitive lack of knowledge among the HCWs in India. Some of these references are dated but they do present the current state of knowledge and attitudes among study participants.

Current Status of HIV/AIDS in Tamil Nadu, India

Tamil Nadu has a population of more than 66 million and ranks seventh among the other states in India for AIDS (Pembrey, 2009). A state AIDS Cell was formed by the Tamil Nadu government, along with funding from World Bank and NACO, which was then converted into Tamil Nadu State AIDS Control Society (TANSACS) in the year 1994. The AIDS cases continued to grow and the state had a high incidence of HIV positive victims within a few years of the first reported case (92,312 reported in 1999). It has been estimated that approximately 178,000 HIV infected people currently live in Tamil Nadu state. HIV prevalence among IDUs in Tamil Nadu was 16.8%, the third highest of all Indian states; it was 6.6% among homosexual men and 4.68% among female sex workers (Pembrey, 2009; Sridhar, 2002).

In Tamil Nadu, the prevalence of HIV was dramatically reduced from 1.13 % in 2001 to 0.34 % in 2006 and was the only state that showed a gradual and steady decline in the infection (Sahu, 2008). There was a notable decrease in HIV prevalence in the state of Tamil Nadu from 0.58% in 2007 to 0.33% in 2009 (HIV/AIDS in India, 2012). This present research study was done in the city of Coimbatore, which belongs to the state of Tamil Nadu.

It was evident from the above findings that the HIV prevention strategies and NACO programs were successful in decreasing HIV/AIDS, but much work remains. The NACO (2011-2012) report also noted that several low prevalence states have shown an increase in the number of new cases in the past two years. This affirms the need for more focused work in the prevention of HIV/AIDS, to maintain what has been achieved (NACO, 2011-12).

The incidence of HIV in pregnant women increased from 0.4% between 1991-1992 to 1.25% between 1995 and 1997 (UNAIDS, 2000) and decreased to 0.25% by 2007 among women that received prenatal care (Pembrey, 2009; Sridhar, 2002). In total, 820,000 pregnant women

have been screened by Tamil Nadu's centers for the past seven years and 4,178 HIV-positive cases were identified in 2007. A program called Prevention of Mother-to Child Transmission (PMTCT) tested 46,552 women and identified 159 HIV-positive cases in the year 2002 (Pembrey, 2009; Sahu, May 2008; Sridhar, 2002). Dr. Ishwar Gilada is the secretary general of AIDS Society of India (ASI) and founder of the public health organization in Mumbai. He mentioned that, according to NACO, in 2009, 18,000 newborn children were infected from 65,000 HIV positive mothers. He further revealed that 2,651 new cases of mother-to child HIV transmission was identified in Tamil Nadu state in May, 2010. A total of 53,000 children are currently living in India with HIV and they all were infected with HIV from their mothers (Jasmine, 2010).

Although there was a steady decrease in HIV prevalence in Tamil Nadu (HIV/AIDS in India, 2012), persons living with HIV/AIDS (PLWHA) still face discrimination in everyday life, such as rental accommodations, medical treatment, and finding work. In order to get medical treatment for other diseases, PLWHA have to pay two to three times more than the regular population, for the same treatment. The President of the Positive Women's Network (PWN+) quoted a patient stating that "The moment I declare my condition in a government hospital, they will give me a bed in the corner of the room or near the bathroom. In private hospitals they will say we don't have any facility or ask us to pay twice or three times more for a procedure" (Sujatha, 2009, p.1). The President of Indian Network for PLWHA remembered an incident at the Government Hospital, in Chengalpet, where a woman was sent out of the hospital because of her HIV positive results (Sujatha, 2009).

Need for Education on HIV/AIDS for Nurses and other Health Care Workers in Tamil Nadu, India

A nurse told a woman in labor, "Swallow this before you deliver or who knows, your baby too will have it (HIV/AIDS)," throwing her a tablet of Nevirapine, at a government medical facility in Trichy (Sridhar, 2002, p.1). She was then informed of her HIV-positive status, thrown out of the private hospital and taken to a government hospital for the delivery of her child. This is only one example of the discrimination that HIV-positive pregnant women face in Tamil Nadu (Sridhar, 2002). Although, Tamil Nadu has favorable statistics for human growth indicators such as health, nutrition, education, and family planning, the noticeable increase in the HIV/AIDS epidemic poses many questions. The founder of YR Gaitonde Center for AIDS Research and Education (YRG CARE) stated that "Management of the disease is not just medical. It is equally important to give support services like counseling, legal services, employment, education, insurance, marriage, fertility counseling, and nutritional counseling" (Sridhar, 2002, p.1).

Studies showed that doctors and other health care professionals discriminate against HIV/AIDS patients due to the health care professionals' inadequate knowledge and negative attitude, which hinders the quality of care provided (Deb, 2004). A study performed among 500 paramedical college students in Tamil Nadu revealed that 98.75% of the students found an HIV/AIDS training program useful, and agreed there is a need for an effective HIV/AIDS education campaign among the student community (Jacob, 2002).

A study was performed at the Government Hospital in Chennai, India to assess the nurses' KAP of HIV and the relationship of the attitude with the knowledge. The study revealed that nurses have a moderate level of knowledge and attitude about the care of HIV/AIDS patients, but an inadequate knowledge in various blood analysis and precautionary measures. The

study also revealed that those who had previous experience or exposure to educational programs showed better knowledge and attitude level than those with no previous experience (Begum, 2002).

Train the Trainer (TTT) Program

Train-the-trainer prevention programs are designed to educate individuals, community members, and health care professionals on HIV prevention strategies. These trainees are provided with information and skills to train other community members or professionals on HIV prevention strategies (Porche & Swayzer III, 2003). In India, most health care centers are inadequately prepared to handle HIV/AIDS patients. Due to their lack of knowledge and ill-equipped preparation, nurses fear that they will contract the disease through patient care which leads to discrimination and stigma towards these patients. A TTT program offers great hope for educating large numbers of nurses in developing countries (Pisal et al., 2007) .

The TTT methodology has been used for educating health care professionals about many diseases. Brimmer and co-researchers conducted a study among 2,064 primary care providers using a TTT education program on Chronic Fatigue Syndrome (CFS). The program was considered to be successful as participants of the CFS TTT program revealed an increased knowledge about CFS. It also increased the core trainers' perceived self-efficacy in identifying the illness (Brimmer et al., 2008). A study was performed in Oyo State, Nigeria, among 148 HCWs. These workers received training on community-related AIDS prevention strategies and expected to train other health care workers. The community-related project was evaluated after four months and showed an increase in the knowledge of HIV among these newly trained HCWs. It also showed a decrease in incidence of unsafe sex of truck drivers (from 44% to

18.9%) and an increased use of condoms (from 53.4% to 71.4%) with female sex workers (Ajuwon, 2008).

In India, Nyamathi et al. conducted a study among 68 Homeopathy physicians and educators (34 practitioners and 34 educators) to evaluate their knowledge concerning HIV/AIDS. The study showed that knowledge about the spread, the character, and the effects of HIV/AIDS on the immune system proved to be higher than other cognitive items mentioned in the CDC HIV/AIDS Knowledge and Attitude Questionnaire. Surprisingly, a small number of homeopathic doctors knew that AIDS could affect the brain; less than 75% knew that an HIV positive individual can feel good and look healthy, and few knew the difference between an HIV infection and the AIDS disease. The study pointed out that Indian homeopathy doctors need more education on HIV/AIDS, through Continuing Medical Education (CME) and other educational programs focusing on AIDS knowledge and its spread (Nyamathi et al., 2008a).

Another study was conducted by Nyamathi et al., among 100 nurses in a public hospital in Delhi, India to examine the effects of an educational training program on nurses' knowledge of HIV. The intervention was a TTT program, wherein a pre-test, two-day training program, and the post-test were conducted. The results revealed that there was a considerable gain in overall knowledge about the transmission of the HIV virus in all groups that attended the educational training. Among the participants, 46% of nurses appropriately answered that an individual could be HIV positive and not have AIDS and 55% of nurses appropriately answered that an individual with AIDS can appear healthy. The knowledge on AIDS transmission was found to be higher on the post- test than the pretest (Nyamathi et al., 2008b).

Pisal et al., studied the effect of a health education program on knowledge and attitudes regarding HIV/AIDS, given for four days to 371 nurses in a government hospital in Pune, India.

Methodology of the study included three phases. Phase 1 included a qualitative assessment; Phase 2 included preparing and planning for a one-week Training-of-Trainers (TOT), and Phase 3, implementation of training, pretest and posttest evaluation, and some post-training observations. Focus groups (FG) were held three times with nurses from the following departments in the hospital: surgery, pediatrics, dermatology, medicine, and obstetrics/ gynecology. Focus groups identified three emerging themes: 1. A major concern of nurses was a fear of exposure; 2. Most nurses expressed the need to learn more about consent and confidentiality; and 3. Stigma and discrimination existed. Nurses expressed concern about self-protection and their interaction with HIV-positive individuals. HIV/AIDS health education proved to be successful in improving the knowledge among nurses in Pune, India. Nurses stated that HIV/AIDS health education was applicable, informative, and practical to their work environment. Significant improvement regarding knowledge on topics such as universal precautions, transmission, and informed consent was identified. A decrease in the fear of HIV patients and transmission led to a decrease in stigmatizing attitudes (Pisal et al., 2007).

The Caribbean HIV/AIDS Regional Training (CHART) group and Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO) established the Voluntary Counseling and Testing (VCT) educational program within 12 countries of the Caribbean Region to support regional teamwork, program stability, and suitable distribution of VCT clinical and training skills (Hiner et al., 2009). The TOT model used “trainer pathways” which is a combination of competent and comprehensive learning methods, which allows the provider to design and develop the curriculum and to train. Within each country in the Caribbean Region, the VCT educational program was successful in creating sustainable service delivery. Approximately 65% of course participants stated that they still provide VCT services. The

program also assisted in building a group of trainers that traveled and trained throughout the Caribbean region (Hiner et al., 2009).

Impact of the TTT intervention

The TTT model appears to be a successful method for transferring knowledge in the health care system. Seventeen faculty members were chosen from six schools of pharmacy within California, and were educated on how to teach pharmacy students and perform outreach events for patients on Medicare Part D (Stebbins, 2009). This study showed significant improvement among participants' knowledge, assessment of curriculum, and mastery and confidence in teaching the content to pharmacy students on Medicare Part D. Within eight weeks, 83% of the schools of pharmacy adopted and taught Medicare Part D as coursework in their curriculum. Within four months, 21 outreach events were conducted and 186 Medicare patients benefited (Stebbins, 2009).

In the southeastern region of the United States, 193 health workers participated in Faculty Trainer Workshops (FTW) based on a standardized program. Eighteen workers utilized the program to train 545 additional health workers within two years. Significant increases were reported by participants in both faculty trainer and trainer-led workshops in knowledge and the desire to modify clinical practices. A study conducted after six-months found that over 90% of faculty trainer respondents stated that the workshop had a positive effect on the care of women with and at risk for HIV/AIDS (Burr et al., 2006).

The TTT program significantly increased the nurses' knowledge on HIV/AIDS. At baseline, the average knowledge of HIV was less than 60%; however, at the baseline posttest, these scores increased dramatically to 80-90%. The TTT model may be a proficient educational approach that can aid health care providers in spreading their knowledge about HIV/AIDS in

terms of prevention, transmission, clinical manifestation, treatment, impact of the disease, and counseling (Nyamathi et al., 2008b).

It is clear that health care workers' negative outlook about HIV/AIDS patients has led to a stigma, which has played a major role in affecting patients' access to healthcare. This issue could also be addressed in TTT programs (Deb, 2004; Hentgen, 2002; Nyamathi et al., 2008b; Williams et al., 2006). It is also important to examine various methods of education, or a mixture of methods, to find an efficient method to transfer this knowledge. Cost-effective analysis would also be essential in terms of TTT modalities versus the more conventional models (Nyamathi et al., 2010; Nyamathi et al., 2008b).

Summary

HIV related treatment is growing rapidly in developing countries. Health care provider education and training is one of many factors critical to the rapid increase in high-quality care. Even though there is an increased demand for HIV-trained health care workers, only a few countries have an extensive training plan. There is also a need for a thorough assessment in the planning, implementing, and funding for HIV training (McCarthy et al., 2006). The TTT models have been used successfully for AIDS education since early in the epidemic. HIV/AIDS comprehensive and interactive training programs can be used to improve the attitude, and increase the knowledge and willingness of health care workers to render care to persons infected with HIV. Nurses can certainly make a significant difference among persons living with HIV (PLWHA) and their families, by delivering quality care and offering emotional support (Nyamathi et al., 2008b).

Chapter 3

Theoretical Framework

Purpose of Chapter

A theoretical framework is utilized in research to provide a preferred model to guide the research process. It is developed by linking a set of ideas and concepts to newly designed or presently existing methods. The framework also links the functions, objects, behaviors, and relationships in any model. The objective of this chapter is to provide background information about the study's theoretical framework for the research. This chapter also details how the Donabedian model, diffusion of innovations theory, and adult learning theory have been used to develop the study's theoretical framework for educating nurses in India to improve care of patients with HIV and AIDS. Train-the-trainer (TTT) models have been introduced for HIV/AIDS education since the beginning of the epidemic and were found to be successful for HIV/AIDS education. This approach is used to educate health care providers of care for HIV/AIDS patients and could have a major impact on whether education leads to change in practice (Burr et al., 2006).

Donabedian Model

Donabedian's framework is based on structure, process, and outcome; this framework has been used for four decades of research studies in the United States. Donabedian's framework has also been used in studies of medical quality of care. Structure refers to the available resources, such as physical building, provider characteristics, and the settings where the study will be conducted in the research. Process refers to how the care is being delivered, including ongoing behavior of the provider. Outcome refers to any change in knowledge and behavior of the subjects and in the patient's health status. These three essential components are linked with one

another, causing the structure to influence the care process and care giver and receiver behavior which can affect the end results, such as client's overall health and satisfaction with the life they lead (Donabedian, 1966, 1980, 1988; Mitchell et al., 1998).

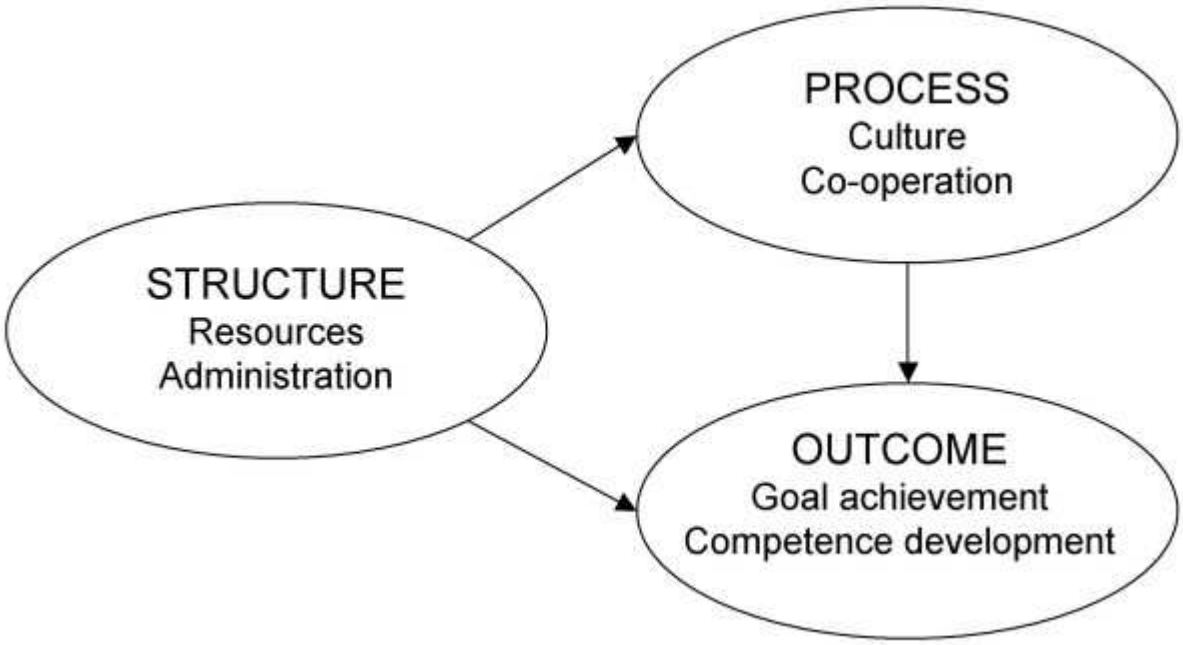
Structure → Process → Outcome

Application of Donabedian Model in other Research

Kunkel and co-researchers focused on application of the Donabedian model to quality systems, instead of just the quality itself (Kunkel et al., 2007; Kunkel & Westerling, 2006). The objectives of their study were to examine whether Donabedian's structure, process, and outcome framework could explain quality systems, analyze the relationship of these components, and discuss the implications of these relationships. A later model was introduced from the results of an interview study (Mitchell et al., 1998) which explained the relationships among structure, process, outcome, and quality systems. In the revised model, structure leads to process and outcome and process leads only to outcome (Kunkel et al., 2007).

The study revealed, in hospital departments, that Donabedian's model represented the quality systems reasonably with relationship to structure, process, and outcome and almost no differences were identified among the model and study sample. Structure was strongly associated with process (0.72) and outcome (0.60) and process was not strongly associated with outcome (0.20) (Kunkel et al., 2007).

Figure 3-1 Donabedian Model Representing Quality Systems (Kunkel et al., 2007).



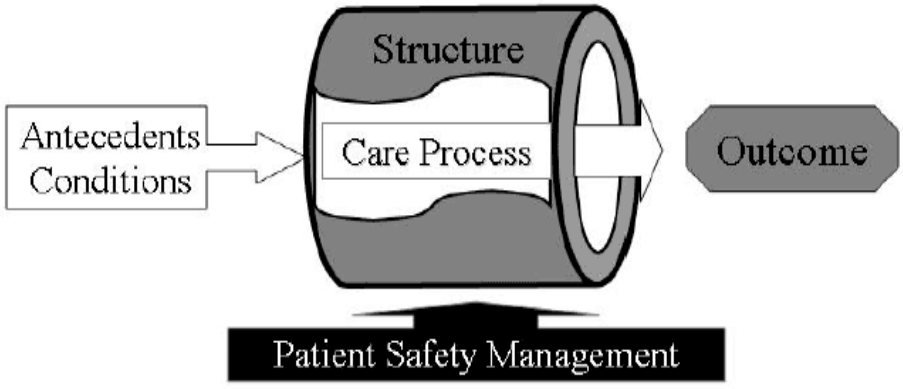
Kunkel, S. T., Rosenqvist, U., & Westerling, R. (2007). The structure of quality systems is important to the process and outcome, an empirical study of 386 hospital departments in Sweden. *BMC Health Services Research, 7*(1), 104.

Donabedian's model also provides a framework for patient safety, which examines how hazards and risks are present within the structure of care and how this could damage or injure patients. For example, failures in processes or structures of any health care setting consistently lead to negative outcomes in patients (Donabedian, 1980).

In 1980, the Donabedian model was modified to include preceding conditions that could influence patient outcome. Coyle and Battles (1999) suggested that patients and their environment were the key aspect in understanding their relationship to any new approach or modification initiated into the care practice. According to Coyle and Battles, the “ultimate criterion” was improved patient outcomes. Prior to any strategy being considered successful, a

change in care practices had to lead to a similar positive change in patients' quality of life. Coyle and Battles incorporated attitude towards health, health-related behaviors, health beliefs, socio-demographic variables, preferences, and genetics to patient factors and integrated cultural, personal, social, and political aspects to environmental factors (Coyle, 1999).

Figure 3-2. Donabedian Model Representing Patient Safety Management (Coyle, 1999).



Coyle, Y. M., Battles, J.B. (1999). Using antecedents of medical care to develop valid quality of care measures. *J Qual Health Care, 2*(1), 5-11.

According to Gawlinski, the Donabedian model can be applied to improve research and evidence-based practice and explains the significant relationships among structure, process, and outcome. Initially Donabedian established the triad model to utilize with assessment of quality and development processes. This framework is linear and can be applied to form a concept of a model for designing and putting into practice an infrastructure in which evidence-based research can grow. She further explained that the key to build successful programs in evidence-based nursing practice is to lay the foundation by launching structures and forums where frequent discussions about the processes for evidence-based research can happen (Gawlinski, 2008).

The nurse leader model in nursing research is also based on Donabedian's model of structure, process, and outcome (SPO). Structure refers to human power and material resources

available in an organization; process refers to steps taken to achieve the outcomes; and the outcome refers to the desired results from the processes. Donabedian's model is consistent with the American Nurses Credentialing Center (ANCC) Magnet certification and recertification process. Magnet recognition by ANCC focuses on structure, processes, and outcomes. In order to achieve magnet status, hospitals or organizations show enough evidence to demonstrate that the structures and processes are used to expand nursing research (Harrington, 2010).

Application of Donabedian Model in Train-the-Trainer Research

In the TTT model, structure referred to three hospitals, colleges of nursing (CON) and a school of nursing (SON) in Coimbatore where the study was held. Participants included faculty of the CON, and a SON, nursing supervisors, administrators, and nurses from these three hospitals. Process referred to educating the nurses using the TTT model; this included the curriculum, teaching and learning components. Generally, outcomes would relate more to patient care outcomes. These are specific behaviors among a group of trained nurses employed in three private hospitals, such as: safety in needle use, disposal of needles, interpersonal communication skills with patients, encouraging and reinforcing positive behaviors, assessment of medication taking behavior, and finally health status of the patients. In this study, outcome referred to a 12-month later measure of attitudes and any change in knowledge about HIV/AIDS among the primary and secondary trainers, i.e., nursing supervisors, administrators, and nurses as measured by pre, immediate post-test, and 12 month follow up.

Diffusion of Innovations Theory

Diffusion is a set of actions, through which a perceived new idea or concept is conveyed, using different methods of communication, over a time period, for a specific group of people within the society (Rogers, 1995, 2003). Rogers (2003) presented that the diffusion process itself

leads to a type of change in the social system as there are changes affecting the structure and functions within the social system. Rogers put forth certain perceived attributes for innovations to take place, such as relative benefit, and compatibility with the adopter's previous experiences, values, and needs. He recognized five distinct adopter categories that can aid in the adoption of an innovation, such as, "innovators, early adopters, early majority, late majority, and laggards" (Rogers, 2003, p.3). Rogers stated that communication is an essential element of the diffusion process; he also mentioned that innovations are more likely to be diffused if they are developed in close collaboration with the end users. He further stated that innovations disseminate more easily when individuals involved in the process have similar backgrounds, values, ideals, and knowledge; he called this "homophily," although "homophilous diffusion patterns cause new ideas to spread horizontally, rather than vertically, within a system" (Rogers, 2003, p.5).

An innovation is creation of a new idea or process, resulting from research and experimentation, and this idea is perceived as novel by an individual. The more the new idea or process is recognized by an individual or society (Nyamathi et al., 2008a), the better the rate of taking up the new idea. The perceived new ideas, channel used for communication, the time taken for the process, and the social organization involved are the four main essentials of the dissemination of new ideas (Rogers, 1995, 2003).

Communication

Communication aids in sharing information to enable a general understanding within a group. Messages get conveyed from one individual to the other using different channels of communication. Knowledge about new innovations is best introduced by using mass media, whereas interpersonal channels are used to change an attitude about a new idea; thus it influences whether an individual will adopt or reject a new idea. An individual assesses an innovation, not

by the expert research, but by their subjective assessment of their peers who have already accepted the innovation (Rogers, 1995).

Application of Diffusion of Innovations Theory in other Research

Instructional technology was started, using innovation theory widely in this field. Innovation theory was also used by a number of other disciplines such as agriculture and marketing; they have used innovation theory to determine how to increase the adoption of innovative products and practice. Instructional technologists have realized that innovation theory has to be used constantly for the effective use of innovative instructional techniques and practices and to enhance the adoption of instructional technologies (Surry, 1997).

Waterman et al., discussed the role of action research in relation to the examination and realistic execution of innovations in health care. The integration of diffusion is an essential component of the worldwide transformation of health services. However, the literature showed that it is difficult to perform the research using this process. Action research has much to offer to the scientific community, but it has only a limited impact in the innovation field. The authors concluded that innovation diffusion is well suited to study where there is a demand for a high level of adaptation in each new setting (Waterman et al., 2007).

Dooks (2001) stated that managing pain is a classic example of a research gap in the practice. Pain has been under treated for the past two decades, despite having excellent research in this field. The author wanted to apply Roger's theory in the integration of research in the pain management area with current and future nursing practice. Roger's theory looked at how changes disseminate through a social system, over a period of time, and how it exposes some of the difficulties and facilitators to this process. The theory also examined adopters, the type of the innovation, the society involved, and communication methods used. It was also revealed that

identifying the barriers to pain management in the past will help nursing to prevail over the similar barriers and augment the adoption of evidence-based pain management in the future (Dooks, 2001).

Roger's diffusion theory was used in Taiwan to observe nurses' acceptance of a computerized care plan system among three respiratory critical care units. The study pointed out that Rogers' model correctly explained nurses' insight for this new skill and their use in daily practice. These researchers also suggested replacing Roger's characteristics of "complexity and observability with image, ease of use, results, demonstrability, and visibility" (Lee, 2004). Roger's diffusion theory has been utilized widely in the last 20 years to understand forces in transferring knowledge into clinical practice. Recently, health organizations as well as health policy started using Roger's theory to clarify the adoption of research evidence. Scholars specialized in diffusion have verified that an individual's preference about an innovation is not immediate; rather, it is a process that happens over time and consists of a series of events. Innovations can be used in prevention, promotion, rehabilitation, and palliative care and include all of the instruments, equipment, drugs and procedures used in today's health care delivery (Maureen et al., 2002).

Application of Diffusion of Innovation Model in Train-the-Trainer

In the TTT model, an innovative training module will be used. This module will be used by the lead trainers, primary trainers, and secondary trainers to give knowledge about HIV/AIDS. Communication is an important step in the innovation model through which information is being shared from one individual to another. In the TTT model, lead trainers, primary trainers and secondary trainers use two-way communication methods. There will be open communication between the trainers and trainees which will enhance the learning of the

new ideas among the participants. In the innovation model, new ideas spread horizontally, while the TTT model uses a vertical process of education; however, following the classes the information may also be disseminated horizontally from nurse to nurses and other health care providers and from nurse to patients.

Train-the-Trainer Model

The TTT model is based on adult learning theory, in which people who constantly train others retain 90 percent of the material they teach (Hill, 2010), and diffusion theory, in which people adopt to a new idea or information through their trust in the social systems. The first step in TTT research is to develop a set of community-based trainers, who in turn train others in their community to impart knowledge on any given topic (Toy, 2005).

The TTT model has been introduced for imparting knowledge on HIV/ AIDS among providers to train other providers with the knowledge and clinical skills about HIV/AIDS. An important benefit of this model is that more and more trainers and trainees will be added to health care organizations, thus increasing the number of trained providers. This increased capacity is crucial in both accomplishing rapid roll-out of services and making sure there is a constant supply of providers trained to deliver desired services. Training new staff will be especially useful when attrition occurs (Hiner et al., 2009).

Train-the-Trainer Model in the Current Research

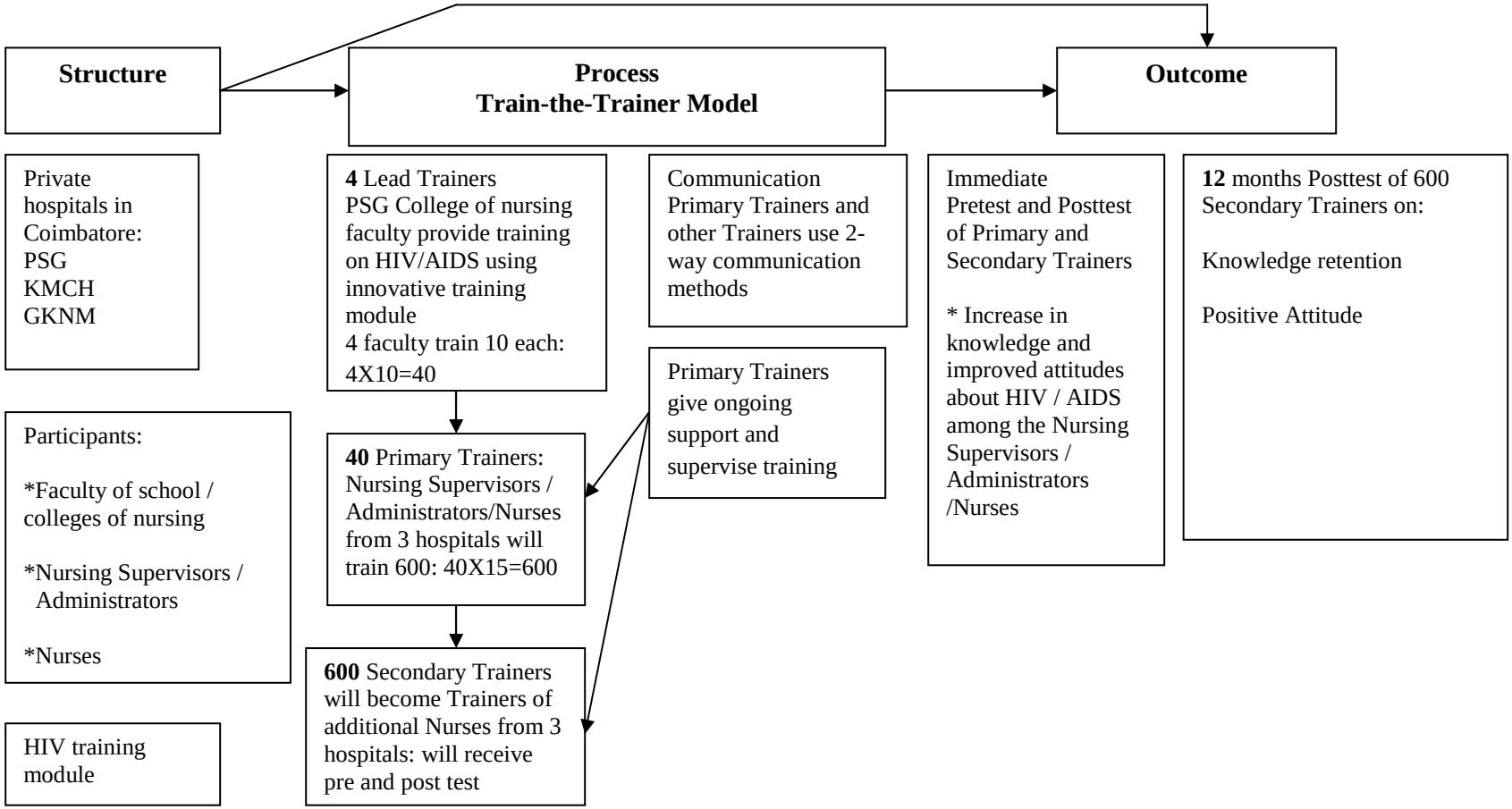
In the TTT model, four faculty members from PSG College of nursing functioned as lead trainers and provided training on HIV/AIDS using the HIV training module. The four faculty members trained ten or more each: nursing supervisors /administrators /nurses from PSG, KMCH, and GKNM hospitals 4X10=40 (or more). Forty (or more) nursing supervisors / administrators /nurses from three hospitals became the primary trainers and trained 600:

40X15=600 (or more). It was hoped that these six hundred (or more) secondary trainers would be the trainers of additional nurses from the three hospitals and would administer pre and post-tests to the new trainees. Primary trainers gave ongoing support and supervised training activities.

Theoretical Framework for the Proposed Train-the-Trainer Research

The theoretical framework for the proposed TTT program research was created using three models: the Donabedian Model, Diffusion of Innovation Theory, and the TTT framework. Donabedian's structure, process, and outcome concepts were included in the model, where changes in the structure and process were expected to lead to a change in the outcomes. Innovation and communication from the diffusion of innovation theory were also included in this model. The innovative training module (HIV training module using the TTT) was used in this research, and there was open communication between trainers and trainees. The TTT model works with the principle of training large numbers of trainers at one given time. In the proposed model, four lead trainers were expected to train forty trainers (or more), and the forty were expected to train six hundred trainers (or more); thus a pool of trainers would be created for HIV/AIDS prevention (See Figure 3-3).

Figure 3-3. Theoretical Framework for the Proposed Train-the-Trainer Research



This model has been adopted from Donabedian model (Donabedian, 1966), Diffusion of innovations model (Rogers, 1995), and Train the trainer model (Flaskerud, 1989).

Donabedian, A. (1966). Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly, 44*, 166-203.

Flaskerud, J. H., Lewis, M. A., & Shin, D. (1989). Changing nurses' AIDS-related knowledge and attitudes through continuing education. *J Contin Educ Nurs, 20*(4), 148-154.

Rogers, E. M. (1995). Diffusion of innovations. from http://www.stanford.edu/class/symbsys205/Diffusion%20of%20Innovations.htm

Specific Aims for Immediate Outcome

1. To compare the retention of cognitive AIDS knowledge and the AIDS transmission knowledge among nurses, from the pre-test to immediate post-test, after attending the TTT program.
2. Post TTT intervention, identify relationships between demographic characteristics, (i.e., educational background, years of experience, nursing unit on which they currently work, and affiliated hospital) in terms of retention of cognitive AIDS knowledge and the AIDS transmission knowledge among nurses, from the pre-test to immediate post-test, after attending the TTT program.

Specific Aims for Twelve Months Later Outcome

1. To compare the retention of cognitive AIDS knowledge and the AIDS transmission knowledge among nurses, from the pre-test to immediate post-test, and twelve month following the post-test, after attending the TTT program.
2. To assess the attitude of nurses about HIV/AIDS twelve month later.
3. To identify if relationships exist between demographic characteristics and the retention of cognitive AIDS knowledge and the AIDS transmission knowledge among nurses at twelve months following the post-test.
4. To identify if relationships exist between demographic characteristics, and the attitude of nurses.

Hypotheses

Immediate Outcome.

1. Nurses will have improved cognitive AIDS knowledge and AIDS transmission knowledge from pre-test to immediate post-test after attending the TTT program.

Twelve Months Later Outcome.

1. Nurses will continue to have improved cognitive AIDS knowledge and AIDS transmission knowledge from pre-test to immediate post-test and twelve months following the post-test after attending the TTT program.
2. Nurses will have a positive attitude about HIV/AIDS patients at twelve months following the post-test.

Operational Definitions

Lead Trainers

Four faculty members from Peelamedu, Sama Naidu, Govindaswamy Naidu (PSG) College of Nursing (CON) were selected as Lead Trainers (LT) and they provided training to 47 Primary Trainers (PT) nurses on HIV/AIDS using the practical train-the-trainer (TTT) module. These faculty members have Masters Degrees in nursing from various specialties, and one was working toward her doctorate. They attended five days of training in Vellore, India, on how to use the TTT model for educating nurses on HIV/AIDS. This training was part of the Indian Nursing Council (INC) project in collaboration with National AIDS Control Organization (NACO) funded by Global Funds for AIDS/Tuberculosis/Malaria (GFATM). The training included extensive coverage on HIV/AIDS, as well as the TTT delivery method using adult

learning principles, teaching strategies using interaction, and special delivery methods pertaining to TTT modalities.

Primary Trainers

At the next level, the 47 PT taught by the LT were Head Nurses/ Nursing Supervisors /Administrators/Nursing Faculty from PSG, Kovai Medical Center and Hospital Limited (KMCH), and G. Kuppuswamy Naidu Memorial (GKNM) hospitals, and their related CON / School of Nursing (SON). These nurses have either completed General Nursing Midwife (GNM) (Diploma Degrees) or Bachelor of Science Degrees in Nursing (BSN) or Masters Degrees in Nursing (MSN) and were working in various faculty or administrative positions in nursing in the three hospitals/CON/ SON mentioned earlier. They actually trained around 848 Secondary Trainers (ST) nurses.

Secondary Trainers

Eight hundred and forty eight ST taught by the PT, were bedside nurses from PSG, KMCH, and GKNM hospitals. They have either completed GNM or BSN. They were selected by the hospital administration to take the training.

General Nursing Midwife (GNM)

The above was a diploma program in nursing: accredited by the Indian Nursing Council (INC); and following the INC approved syllabus; the duration of the program was three years. A majority of the nurses who graduated from this program were bedside nurses.

Bachelor of Science in Nursing (BSN)

A BSN was a degree program in nursing: accredited by the INC; affiliated with universities; and following the INC approved syllabus; the duration of the program was four

years. Nurses who graduated from this program were bedside nurses, or nursing administrators, or clinical faculty members.

Registered Nurse and Registered Midwife

Nurses, who graduated from the GNM or BSN programs, must register with Tamil Nadu nursing council and should receive a Registered Nurse and Registered Midwife (RN and RM) certificate to practice as a nurse in Tamil Nadu state, India.

Chapter 4

Research Methodology

This chapter will explain the study design, the settings and sample, instruments used for measurement of variables, data collection procedures and the methods of statistical analysis.

Background of the Original Study

Phase one and phase two of the research study focused on educating nurses to improve care of patients with HIV/AIDS and was conducted in three different hospitals and their related Colleges of Nursing (CON) / School of Nursing (SON) located in Coimbatore, India. The three hospitals and their related CON/SON were Peelamedu, Sama Naidu, Govindaswamy Naidu (PSG) Hospital; Kovai Medical Center and Hospital Limited (KMCH); and G. Kuppuswamy Naidu Memorial (GKNM) hospital. Phase three of the study focused on twelve months follow-up. The setting remained the same in phase three of the study. In phase one and phase two of the study, this University of California in Los Angeles (UCLA) researcher served as a research coordinator and in phase three as a principal investigator.

Phase One

The initial part of the study (Dr. Nyamathi and Dr. McNeese-Smith) was accomplished with four Lead Trainers (LT), faculty from PSG CON who received their training from National AIDS Control Organization (NACO) and who then educated 47 Primary Trainers (PT). Pre-test and immediate post-test evaluations of AIDS knowledge and transmission were collected before and after the train-the-trainer (TTT) classes were completed.

Design

A one group pre-test- post-test design was used in phase one of the research.

Sample

Four faculty members from PSG CON were selected as LT and 47 PT (nurses and faculty members) were selected from PSG, KMCH, and GKNM hospitals, SON, and CON.

Sampling Method

Convenience sampling

Setting

PSG CON

Procedure

Before starting the study proceedings the Institutional Review Board (IRB) approval was sought and received before any research was initiated. The TTT model was introduced for imparting knowledge on HIV/ AIDS among providers to train other providers with the knowledge and clinical skills about HIV/AIDS. Four faculty members from PSG CON were selected as LT. They attended HIV/AIDS and Anti-Retroviral Therapy (ART) Training for Nurses conducted by the Indian Nursing Council (INC) with the collaboration of the NACO for five days at Vellore, India. The UCLA and the PSG research team provided three days of training for the PT and two days of training for the Secondary Trainers (ST).

The Nurses' Manual on HIV/AIDS was prepared by the LT from PSG CON and later reviewed and revised by the UCLA research team. Representatives from the UCLA research team and the LT from PSG CON met with the Nursing Superintendents, Principals, and Deans of PSG, KMCH, and GKNM hospitals, SON, and CON and invited them to participate in the study. Planning and execution of the study were discussed in detail during that meeting. PSG was considered to be the primary center for this research and they involved the other hospitals, CON and SON.

Further discussions were held on how to implement the secondary level of training in all three facilities. It was decided by the UCLA and PSG research team that a total of 500 ST would be trained from the three facilities (PSG 180, KMCH 160, and GKNM 160). Each PT would train at least 10 more (47 X 10 = 470 + 30 extra) ST. Research coordinators were selected for PSG, KMCH, and GKNM by the PT. Trainer's Guide on HIV/AIDS in addition to the Nurses' Manual on HIV/AIDS were given to the PT. In addition, each facility was given a CD which contained the PPTs to assist further in the conduct of secondary level training. The three hospitals each received 150-200 Nurses' Manuals on HIV/AIDS for ST.

Researchers announced that each PT would receive Rs.500.00 (11 USD) as an incentive when they train 10 or more nurses. Primary and ST would receive a completion certificate issued by UCLA and PSG. Representatives from the UCLA research team thanked the LT for conducting the program, the PT for participation and for their future involvement in the research, PSG CON for organizing the training, and PSG, KMCH, and GKNM institutions for participating in the research.

Content of the Nurses' Manual

A wide variety of topics on HIV/AIDS was covered in the training. Different methods of training were used such as: lecture with Power Points (PPTs), role play, video clipping, small group discussions, breakout sessions, and case studies. There were 14 content areas covered in the three days of training, and the topics were well organized and presented by the LTs. The content covered in the training were as follows: (1) Introduction to HIV/AIDS, (2) HIV/AIDS/ Epidemiology, (3) Stigma of HIV/AIDS and Discrimination, (4) Prevention of HIV, (5) Counseling Techniques and Testing, (6) Prevention of Parent to Child Transmission (PPTCT), (7) Infection Control (8) Opportunistic Infections (9) Anti-Retroviral Therapy (ART), (10)

Sexually Transmitted Infections, (11) Pediatric HIV, (12) Positive Living for Persons Living with HIV/AIDS (PLHAS), (13) Palliative Care to Persons Living with HIV/AIDS (PLHAS), (14) Challenges Faced by Nurses: Post Exposure Prophylaxis (PPE).

Data Collection

A total of 47 PT were selected by PSG, KMCH, and GKNM hospitals, SON, and CON. Out of 47 PT, 17 PT were from PSG (5 faculty members from the CON, and 12 nurses from the hospital); 15 PT were from KMCH (4 faculty members from the CON, 1 Nurse Manager (NM), and 10 nurses (MSN students); and 15 PT from GKNM (8 faculty members from the SON, and 7 nurses from the hospital). PT attended three days of training in the prevention of HIV/ AIDS at PSG CON from the 16th to the 18th of September, 2010. PT received the Nurses' Manual on HIV/AIDS on their first day of the training. The pre-test was administered after registration and introduction to the training. The post-test was administered on the third day of training after completion of all the sessions.

Phase Two

Forty Seven (47) PT educated 848 ST.

Design

A one group pre-test-post-test design was used in phase two of the research.

Sample

848 ST (nurses and faculty members) were selected from PSG, KMCH, and GKNM hospitals, CON, and SON.

Sampling Method

Convenience sampling

Setting

PSG, KMCH, and GKNM hospitals, SON, and CON

Procedure

The TTT methodology for educating nurses to improve care of patients with HIV/AIDS was conducted at PSG, KMCH, and GKNM hospitals and their related CON and SON located in Coimbatore, India. Secondary level training was completed in all three facilities; each facility completed their target number. GKNM Hospital went one step further and educated all their nurses. GKNM trained a total of 520 nurses as ST to complete a total of 848 ST. Representatives from the UCLA research team met with each of the ST and thanked them for their leadership and for participating in this international research and education. They also reminded them about the twelve month follow up study and the need for their cooperation and participation in the follow up research. Pictures of the classes were left at the hospitals and CON/SON.

Data Collection

After obtaining the IRB approval, the 848 ST received a two-day training on HIV/AIDS prevention using the TTT methodology. Pre-tests and immediate post-tests after the TTT classes were collected.

Phase Three

Twelve months follow-up of the ST: this UCLA doctoral researcher was focusing on phase two and phase three of the research study for her dissertation.

Phase Three Research Design

A one group pretest, post-test, and twelve months post-test design was used to assess the effect of an educational research intervention for educating nurses about HIV/AIDS in India. In this design, there is no experimental or control group and subjects are not randomly selected or

assigned (Shadish, 2001). In educational research, it is not always possible for researchers to carry out true experiments, which involve a random assignment of members to either a control or an experimental group. According to Campbell and Stanley (1963), the researchers may be able to apply a similar approach to a true experiment in which the researchers have authority over the "who and whom of measurement" but lack authority over the "what time and to whomever of exposure," or the ability to control randomization exposures, which are essential for a true experimentation. In this study quasi experimental design was not used (Campbell and Stanley, 1963; Cohen, 2007, p. 282).

Model of the Design

Phase three focused on the one group pretest post-test design and the one group time series (twelve months post-test only) (Cohen, 2007; Shadish, 2001). The design could be symbolized as follows:

$$O_1 \quad X \quad O_2 \qquad O_3$$

Strengths and Weaknesses of the Design

The One Group Pre-test- Post-test Design

Duckart (1998) recognized a number of threats to the validity of this design. Maturation, history, and attrition are all threats to the internal validity. For example, information about the study given to the subjects might change their behavior, particularly if they receive information before the pre-test. Maturation could be a threat because of the repeated measures, such as pre-test, immediate post-test, and twelve month follow-up post-test. History could be a threat, if the nurses receive any additional information around the same time or after the study had taken place. Outcome measures might be affected if the researchers influence the intervention unknowingly. Outcome might have been affected in the phase one and phase two of the study as

the same individuals administered pre-test, intervention, and post-test. Outcomes might also be affected if a large number of participants are lost, especially if those subjects represent a different view than the remaining subjects (Duckart, 1998; Shadish, 2001).

Identification of the Population and Sample

As reflected in Table 4-1, overall sample size estimation revealed 381 participants were needed for this study. This power analysis was based on a one group sample. All three: large, medium, and small effect sizes have been adjusted at 0.05 alpha (α) levels. It was decided to use a small effect size to be more conservative; hence the required sample would be 381(Bruin, 2011).

Table 4-1. Sample Size: Use of Power Analysis

Outcome Variable	Statistical test	Hypothesis (one-sided or Two-sided)	Effect Size (small, medium and large)	Adjusted alpha level	G*Power calculated N (Total Sample Size)
Knowledge/ Attitude	Paired t-test	Two-sided	.2	0.05/2=0.025	241
			.5	0.05/2=0.025	41
			.8	0.05/2=0.025	18
Item 1-item 21	Paired t-test	Two-sided	.2	0.05/21=0.002	381
			.5	0.05/21=0.002	65
			.8	00.05/21=0.0024	29
Overall Sample Size Estimation					381

Bruin, J. (2011). Power analysis. from http://www.ats.ucla.edu/stat/gpower/one_sample.htm

Sampling Criteria

Inclusion Criteria

1. Nurses who completed their basic nursing education such as General Nursing Midwife (GNM)/ Bachelor of Science in Nursing (BSN) or higher from an Indian-based nursing school/college/or university and received their Registered Nurse (RN) and Registered Midwife (RM) certificate from nursing council;
2. Nurses/nursing faculty members working in the three participating hospitals (PSG, KMCH, and GKNM) and their related CON/SON as a bedside nurse or nursing educator;
3. Internees (recently graduated nurses from nursing school or college) working in the three participating hospitals (PSG, KMCH, and GKNM) as bedside nurses;
4. Nurses who practice in any area of nursing within the participating three hospitals; and
5. Nurses who completed the two-day TTT program.

Exclusion Criteria

1. Non nursing personnel who are not RN and RM;
2. Nurses/nursing faculty members working in other than PSG, KMCH, and GKNM hospitals and CON/SON; and
3. Participants who did not complete the two day TTT program.

Sampling Method

Convenience sampling is a type of non-probability sampling in which all the available subjects are being taken from the target population which is readily present and convenient (Agresti, 1997; Jaeger, 1993; Trochim, 2006). In phase three of the TTT research, convenience sampling was used. It was difficult to relieve all the nurses from work at the same time. Nurses

who were available and interested in participating in the study, and were relieved by their hospitals were included in the study. In this study, a control group was not present as all the participants attended the TTT program which limited the ability to decrease the effects of a non-random convenience sample. The research team had discussions with the nurse administrators to have a good representation of nurses from the three hospitals which could reflect the target population. It is always good to have random sampling, but the researcher believed that the research questions for this study could be addressed sufficiently with the selected samples.

Selection of a Setting

Overview of HIV/AIDS Care in India

Ramkumar (2014) reported in the Times of India, a leading magazine in India about the care of HIV/AIDS patients in Coimbatore, India where the current study was held (Ramkumar, 2014). A 16 year old boy was not given treatment in a private hospital because of his HIV status. Almost 98% of the private hospitals in Coimbatore city refuse treatment for HIV/AIDS patients. As per the Tamil Nadu State AIDS Control Society (TANSACS), three private hospitals have decided to treat and perform surgery on HIV patients in Coimbatore but they charge them twice more than the regular patients (Ramkumar, 2014). The president of the Coimbatore Positive Network, a city based Non-Governmental Organization (NGO) said that the private hospitals simply say to the patients that they do not have adequate facilities or infrastructure to treat HIV positive patients (Ramkumar, 2014). Similar to other countries, people living with HIV/AIDS (PLWHA) in India are constantly exposed to violent attacks, rejection by families and communities, refusal of medical treatment, and sometime even denial of their last wishes and rites (AVERT, 2012).

PSG Hospital and CON

PSG is a 900 bed multi-specialty hospital focusing on total health care. It is part of a major Indian university. There are approximately 40 departments in this hospital and a total of 550 nurses working in this hospital on various shifts. Nurses who work at PSG either completed their General Nursing Midwife (GNM) or Bachelor of Science in Nursing (BSN) degrees and received their RN and RM certification. PSG institution is associated with the CON, where they educate both BSN and Master of Science in Nursing (MSN) students. There are approximately 36 faculty members who work at the CON. A total of 200 BSN students and 60 MSN students presently study at this CON. The number of patients who were diagnosed with HIV at PSG hospital were 94 in the year 2010. Recent conversations with the nursing superintendent of the PSG hospital indicate that they now treat HIV patients, but will send them to the government facility for major treatment.

KMCH and CON

KMCH is an 800 bed multi-specialty hospital. There are approximately 42 departments in this hospital, and about 1000 patients are treated every day in their in-patient and out-patient settings. A total of 350 nurses are working in this hospital on various shifts. Nurses who work at KMCH either completed their GNM training or BSN and received their RN and RM certification. KMCH owns a CON, where they educate both BSN and Master of Science in Nursing (MSN) students. There are approximately 35 faculty members who work at the CON. A total of 373 BSN and MSN students presently study at this CON. KMCH did not admit any patient with an HIV infection in the year 2010. As a routine procedure, KMCH checks the HIV status of every patient who comes to the Emergency Room (ER) and if the patient's HIV status is positive, he/she will be sent to the Government hospital.

GKNM Hospital and SON

GKNM Hospital is a 575 bed multi-specialty hospital focusing on education and training. There are approximately 27 departments in this hospital. A total of 520 nurses work in this hospital on various shifts. Nurses who work at GKNM either completed their GNM training or BSN and received their RN and RM certification. GKNM Hospital owns a SON, where they educate GNM students. There are approximately 10 faculty members who work at the SON, and about 80 students presently study at this SON. The number of patients who were diagnosed with HIV at GKNM hospital was 15 in the year 2010. Recent conversations with the nursing research coordinator of the GKNM hospital indicate that they now treat HIV patients, but will send them to the government facility for major treatment.

Strengths and Weaknesses of the Setting

Strengths

1. All three facilities are multi-specialty, and privately owned hospitals.
2. All three facilities have a similar vision to provide high quality care, at an affordable cost, to the community.
3. Policies are made internally, with little external influence.
4. All three facilities are located within a 10 mile radius
5. Nurses employed in the selected three facilities have similar qualifications: they either completed their GNM training or BSN and received their RN and RM certification.

Weaknesses

1. Nursing administrators from the selected three facilities differed in their view about the importance of educating nurses on HIV/AIDS prevention. Some were willing to

send their nurses for the TTT while others were hesitant due to a lack of nurses. This affected the way they influenced their nurses to participate in the intervention.

2. Nurses employed in these three facilities have varying years of experience.
3. All three facilities have a different type of administrative structure, policies and procedures, which may have influenced the importance and support for the nurses' education on HIV/AIDS prevention.
4. Nurses' exposure to HIV/AIDS patients is limited in these hospitals as patients are sent to government hospitals for further treatment.

Presentation of Ethical Considerations

UCLA IRB approval was obtained for the first two phases and for the phase three, twelve months follow-up of the TTT program in Coimbatore, India. After obtaining the IRB approval this UCLA researcher conducted the study (Appendix A).

Data Collection

This UCLA researcher utilized the de-identified pre- and immediate post-test data of the ST from phase two of the study, UCLA IRB # G10-05-035-01. The twelve months follow up study was an extension of phase one and phase two of the study. This UCLA researcher carried out the entire research. Approved flyers from IRB (Appendix B) were displayed in different wards (units) of the three hospitals, Nursing Superintendent office, Cafeteria, and CON/SON, for inviting the nurses to participate in the follow-up research study. Flyers had the contact phone number for the researcher, and her availability in their break room. All nurses interested in participating in the follow-up research contacted this UCLA researcher, and a brief description about the study was given to the interested nurses. After reading the IRB approved eligibility screening script (Appendix C, D, and E) and research study information sheet to the

participant(s) (Appendix F, G, and H), this UCLA researcher presented the CDC questionnaire post-test (Appendix I) and AIDS Attitude Scale (AAS) (Appendix J) to PT and ST of all three facilities for the follow up study. This UCLA researcher visited all three facilities each day and collected the completed 12 months post-tests questionnaires for a three-week period. Primary Trainers and ST received an attractive book mark with a UCLA logo and the following inscription "Proud Participant of HIV/AIDS Prevention Research," and "Together We Make a Better World."

Instruments

CDC Knowledge and Attitudes Regarding AIDS questionnaire (Appendix I) and AIDS Attitude Scale (Appendix J) were used in phase three of the study.

CDC Knowledge and Attitudes Regarding AIDS Questionnaire (NCHS, 1989)

CDC questionnaire was originally developed by National Center for Health and Statistics (NCHS) along with a group of people from CDC (NCHS, 1989).The CDC questionnaire has two sections; questions focusing on knowledge and transmission, and socio-demographic information. Examples of socio demographic information include: hospital affiliation of nurses, educational qualification, and years of experience. Knowledge about HIV/AIDS and its transmission, in the TTT research in Coimbatore, India, was measured by a subset of a 21-item questionnaire (Appendix I) developed originally by the CDC (NCHS, 1989) and later revised by Leake et al and found to have concurrent validity (Leake et al., 1997). Socio demographic information, pre-test and the immediate post-test from the CDC questionnaire were completed during phase one and phase two of the study. Phase three used the same CDC questionnaire (Appendix I) in the twelve-month follow-up as a post-test. Socio demographic information from the CDC questionnaire was completed again.

Items in the present AIDS questionnaire address a wide variety of subjects, including knowledge about AIDS, its transmission, sources of AIDS information, and information about HIV testing. Among the 21 items, 10 items belong to the knowledge part of the questionnaire, while the remaining 11 items belong to the transmission part of the questionnaire. The following scoring choices are present in the 21 items: (a) definitely true, (b) probably true, (c) probably false, (d) definitely false, and (e) don't know. Sample statements from the CDC questionnaire include: "Teenagers cannot get AIDS," and "A pregnant woman who has the AIDS virus can give the AIDS virus to her baby." These questions are used for testing the nurses' knowledge of HIV/AIDS. For testing the nurses' knowledge about transmission of HIV, the following questions are used, " A person will get AIDS or the AIDS virus infection from attending school with a child who has the AIDS virus," and " A person will get AIDS or the AIDS virus infection from using public toilets" (Leake et al., 1997; Nyamathi et al., 2008b).

Scoring

A knowledge index was created based on the correct or incorrect answers to the 21 items of CDC Knowledge and Attitude regarding AIDS Questionnaire. The knowledge index was created by adding the number of right answers to all items. Each question has a five answer option; out of the five options one was the correct answer. Each correct answer was given an index value of one and an incorrect answer was given an index value of 0.Two sub knowledge areas were created to represent AIDS cognitive knowledge and AIDS transmission knowledge. The index for cognitive knowledge was created with the range 0-10, the index for transmission knowledge was created with the range 0-11, and the index for overall knowledge was created with the range 0-21.

AIDS Attitude Scale (AAS)

The AAS (Appendix J) was originally developed to measure positive or negative attitudes towards HIV/AIDS patients (Froman et al., 1992). The AAS provides a reliable and valid scale to quantify persons' attitudes toward a Person Living with HIV/AIDS (PLWHA), thus making a practical, systematic study of attitudes possible. Primarily this instrument has been widely used for assessing nurses (either practicing nurses or nursing students) and other health care workers' attitudes towards PLWHA (Froman & Owen, 1997).

The AAS consists of two subscales with two major constructs: avoidance and empathy, comprising a 21-item scale. Each item is connected to a six-point likert scale that ranges from strongly disagree to strongly agree. A neutral choice is not possible, if the scale has an even number of points. The numeric value for strongly disagree is 1 and it proceeds through to 6 for strongly agree. To estimate the scores, the individual items are totaled and it will be divided by the number of items that the participant has answered. The mean scores range from 1–6. Larger scores indicate empathy and smaller scores indicate avoidance. A more anticipated and therapeutic attitude will have a larger score for empathy and a smaller score for avoidance. The empathy score minus the avoidance score will give a general attitude score and it can range from -5 to +5. A positive score indicates a supportive attitude and negative scores indicate a non-therapeutic attitude (Froman & Owen, 2001).

Among the 21 items, 14 items belong to the "Avoidance" category and seven items belong to the "Empathy" category. Sample statements from the avoidance items of the AAS include: "Most people who have AIDS have only themselves to blame," and "I am worried about getting AIDS from social contact with someone." Sample statements from the empathy items of

the AAS include: “It is especially important to work with patients with AIDS in a caring manner,” and “I would like to do something to make life easier for people with AIDS.”

Reliability, Validity, and Scoring

Froman et al. explained the psychometric properties of AAS. Repeated studies using factor analysis, reliability estimation, generalizability analysis, and content validation, revealed that the AAS has strong psychometric properties. Providing information about both positive (Empathy) and negative (Avoidance) attitudes is useful to evaluate outcomes and plan appropriate interventions for a better attitude (Froman & Owen, 1997; Williams et al., 2006). Martin & Bedimo (2000) found that the AAS had adequate generalizability. The internal consistency estimation revealed that a 14-item avoidance and a 7-item empathy scale were .89 and .83, respectively (Martin & Bedimo, 2000). A study conducted to find the stability of the AAS, using a sample of 25 nurses, revealed .87 and .85 internal consistency for avoidance and empathy respectively. Avoidance and empathy factors revealed a theoretically significant negative correlation to each other with = -.51 (Froman & Owen, 1997; Froman et al., 1992). A study conducted among 208 Chinese nurses revealed that content validity of the AAS was at least 80%with agreement among a seven judge panel in all relevant items. Alpha internal consistency estimates for the AAS ranged from 0.87 to 0.90 for avoidance items and 0.83 to 0.88 for empathy items (Williams et al., 2006). A study conducted among 54 Cameroonian nursing students revealed reliability coefficients ranging from 0.85 to 0.90 for AAS (Diesel, 2013). In the current study, the internal consistency estimates with 14 avoidance items and the 7 items empathy of the AAS scale were (Cronbach's alpha) 0.6 and 0.8 respectively, using a sample of 471 at the 12 month follow-up assessment.

Data Analysis

Descriptive statistics were used to determine means, standard deviations, percentages, and frequencies of the demographic, work, and education-related variables in the pre, post, and 12 months post-test. Descriptive statistics were also used to determine frequencies, and percentage distribution of cognitive, transmission, and overall knowledge of HIV/AIDS, attitude of nurses, and practical application of HIV/AIDS. Paired t-tests were used to identify whether there were significant changes from the pre-test to post-test for each individual item measuring knowledge, transmission and overall knowledge of HIV/AIDS (Jaeger, 1993; WINKS, 2008). Mixed model analysis was used to determine the cognitive, transmission, and overall knowledge trend. An ANOVA was performed to determine if cognitive, transmission, overall knowledge of HIV/AIDS, and attitude of nurses of HIV/AIDS were associated with demographic, education and work related variables among nurses in the pretest, post-test, and 12 months post-test. A Bonferroni correction was performed to reduce type 1 error among the pairwise test performed on the collected set of data (Talley et al., 2010).

Regression analysis was done for multivariate analysis. One or more demographic variables or factors were used to determine the stronger relationships among cognitive, transmission, overall knowledge of HIV/AIDS, and attitude of nurses of HIV/AIDS (Martin & Bedimo, 2000). Regression analysis was done using the backward method, and the following stepping method criterion was used to include and remove variables: to include variables probability $\leq .05$ was used, and to remove variables probability $\geq .1$ was used. Demographic variables such as age, gender, marital status, religion, education, and work related variables such as primary hospitals, degree completed, job title, work unit, and clinical experience were used to

determine the stronger relationships with cognitive, transmission, overall knowledge, and attitude of nurses of HIV/AIDS.

Communication of Findings

The study findings will be presented to the dissertation committee; after the approval of the committee, the dissertation will be completed and submitted to the university. Then study findings will be reported to the authorities of PSG, KMCH, and GKNM hospitals. In addition, an abstract of the study will be submitted for presentation of the research at an International HIV/AIDS conference within the USA and/or in India. The study will be submitted to at least three journals for publication such as, Journal of the Association of Nurses in AIDS Care, Journal of Advanced Nursing, the Nursing Journal of India and the Indian Journal of Community Medicine. One article will be: A Literature Review of Need for Education on HIV /AIDS for Nurses, using a TTT Model. Two articles will reflect data analysis. The second article will be focusing on "A Comparison of Pre-test, Immediate Post-Test, and Follow-Up Data of Knowledge and Transmission of HIV/AIDS of Nurses Participating in a TTT Program on HIV/AIDS." The third article will be focusing on "A Twelve Months Follow-up of Attitude of nurses following Participation in a TTT Program."

Chapter 5

Results

This chapter will review the characteristics of the participants and the results of the research study presented in the order of the specific aims of the project.

Specific Aims for Immediate Outcome

1. To compare the retention of cognitive AIDS knowledge and the AIDS transmission knowledge among nurses, from the pre-test to immediate post-test, after attending the TTT program.
2. Post TTT intervention, identify relationships between demographic characteristics, (i.e., educational background, years of experience, nursing unit on which they currently work, and affiliated hospital) in terms of retention of cognitive AIDS knowledge and the AIDS transmission knowledge among nurses, from the pre-test to immediate post-test, after attending the TTT program.

Specific Aims for Twelve Months Later Outcome

1. To compare the retention of cognitive AIDS knowledge and the AIDS transmission knowledge among nurses, from the pre-test to immediate post-test, and twelve month following the post-test, after attending the TTT program.
2. To assess the attitude of nurses about HIV/AIDS twelve month later.
3. To identify if relationships exist between demographic characteristics and the retention of cognitive AIDS knowledge and the AIDS transmission knowledge among nurses, from the pre-test to immediate post-test, and twelve month following the post-test.

4. To identify if relationships exist between demographic characteristics, and the attitude of nurses.

Socio-Demographic Characteristics of Nurses

Study participants in the pre and immediate post-test evaluations ranged from 20 to 62 years of age, mean (M =26.5), standard deviation (SD =6.55); 94.7% were females, 5.3% were males; and the majority were Christians (50.6%) or Hindu (40.1%). The majority were single (67.7%) or were married (32.3%), and all of them were working full time. They were selected from three different private hospitals located in Coimbatore, India. In total, 61.4% were recruited from G. Kuppuswamy Naidu Memorial (GKNM) Hospital, 20.9% from Peelamedu, Sama Naidu, Govindaswamy Naidu (PSG) Hospital, and 17.7% from Kovai Medical Center and Hospital Limited (KMCH). Their job titles were nurse 80.1%, and nurse intern 19.9%. All participants were qualified to practice as a Registered Nurse (RN); among them 65.2% received a General Nursing and Midwifery (GNM) diploma, and 34.8% received a Bachelor of Science in Nursing (BSN). Their experience varied from no experience to 35 years (M =4.57, SD =5.82) and they were working in different units of the hospitals such as: Administration 1.2%, Intensive Care Unit (ICU) 19.5%, Medical Surgical 5.8%, Surgical 3.9%, Oncology 5.5%, Pediatrics 8.1%, and Other (Cardiology, Ortho, Labor and Delivery, OB, ER, Blood Bank, Multi Unit) 56.0%. In the 12 months follow-up, participants' age, and years of experience increased by one year. Total number of participants in pre and immediate post-test were 848 and this number was reduced to 471 at the 12 months post-test (See Table 5-1).

Table 5-1 Distribution of Demographic Variables among Nurses

Variables	Frequency (%)	Frequency (%)
	Pre & Immediate Post Test (n=848)	12 months Post Test (n=471)
Demographic Variables		
Age in years		
a) < 25 yrs	528(62.3)	247(52.4)
b) 26 – 30 yrs	164(19.3)	104(22.1)
c) 31 – 35 yrs	76(9.0)	59(12.5)
d) 36 – 40 yrs	43(5.1)	27(5.7)
e) > 40 yrs	37(4.4)	34(7.2)
	(M =26.49, SD =6.55)	(M =27.82, SD =6.87)
Gender		
a) Male	45(5.3)	27(5.7)
b) Female	803(94.7)	444(94.3)
Religion		
a) Hindu	408(48.1)	232(49.3)
b) Christian	429(50.6)	232(49.3)
c) Muslim	11(1.3)	7(1.5)
Marital Status		
a) Single	574(67.7)	314(66.7)
b) Married	274(32.3)	157(33.3
Work and Education Related Variables		
Hospitals		
a) PSG	177(20.9)	99(21.0)
b) GKNM	521(61.4)	283(60.1)
c) KMCH	150(17.7)	89(18.9)
Job Title		
a) Nurse	679(80.1)	380(80.7)
b) Nursing Intern	169(19.9)	91(19.3)
Work Unit		
a) Administration	10(1.2)	9(1.9)
b) ICU	165(19.5)	82(17.4)
c) Med & Sur	49(5.8)	27(5.7)
d) Surgical	33(3.9)	21(4.5)
e) Oncology	47(5.5)	27(5.7)
f) Pediatrics	69(8.1)	40(8.5)
g) Other (Cardiology, Ortho, Labor and Delivery, OB, ER, Blood Bank, Multi Unit)	475(56.0)	265(56.3)
Degree Completed		
a) GNM	553(65.2)	305(64.8)
b) BSN	295(34.8)	166(35.2)
Clinical Experience		
a) 0	170(20.0)	0
b) < 5 yrs	448(52.8)	307(65.2)
c) 6-10 yrs	135(15.9)	75(15.9)
d) 11-15 yrs	36(4.2)	36(7.6)
e) 16-20 yrs	39(4.6)	32(6.8)
f) > 20 yrs	20(2.4)	21(4.5)
	(M =4.57,SD =5.82)	(M =6.02,SD =6.29)
Full Time/Part Time		
a) Full time	848(100)	471(100)

CDC Knowledge and Attitude regarding AIDS Questionnaire

Mean Percentage of Cognitive AIDS Knowledge (n=848 pre and immediate post-test), (n=471 pre, immediate post, and 12 months post-test).

Overall cognitive AIDS knowledge improved significantly from pre-test (M =50.42, SD =15.49) to immediate post-test (M =64.17, SD =14.92) for the original sample of 848 subjects. The pre- and immediate post-test scores were analyzed separately for the 471 participants with the results demonstrating similar means at the pre-test (M=50.91, SD =14.93) and immediate post-test (M=64.42, SD =13.84) when compared to the entire group (848). At the 12 months post-test, the scores decreased from the immediate post-test (M=57.32, SD =14.88) but were still significantly higher than the pre-test scores for the remaining 471 participants (M=57.32, SD=14.88; paired t-test at $p<0.001$. See Table 5-2 and see table 5-5 for paired t-test results).

There were several exceptions in the responses: question E, "A person can be infected with the AIDS virus and not have the disease AIDS," was correctly answered by 18.3% of the nurses in pre-test, decreased to13.6% in immediate post-test, and increased to 18.7% in 12 months post-test. Overall it had a poor correct response rate. Question F, "Looking at a person is enough to tell if he or she has the AIDS virus," was correctly answered by 61.4% of the nurses in the pre-test, increased to 65.2% in immediate post-test, and increased further to 67.3% in the 12 months post-test. Question B, "AIDS can damage the brain," was correctly answered by 16.6% of the nurses in pre-test, increased to 59.7% in post-test, but decreased to 21.4% in the 12 months post-test. Questions G, "A person who has the AIDS virus can look and feel well," and question H, "A pregnant woman who has the AIDS virus can give the AIDS virus to her baby," had a poor level of correct responses (See Table 5-2).

Table 5-2 Frequency and Mean Percentage of Cognitive AIDS Knowledge with correct answer in ( ) (n=848 pre and immediate post-test), (n=471 pre, immediate post, and 12 months post-test)

CDC knowledge of Cognitive AIDS	Correct Responses				
	(n=848) %		(n=471) %		
	Pretest (n=848)	Immediate Post-test (n=848)	Pretest (n=471)	Immediate Post-test (n=471)	12 Months Post-test (n=471)
A. AIDS can reduce the body's natural protection (Yes)	670(79.0)	788(92.9)	375(79.6)	439(93.2)	416(88.3)
B. AIDS can damage the brain (Yes)	141(16.6)	506(59.7)	83(17.6)	288(61.1)	101(21.4)
C. AIDS is an infectious disease caused by a virus (Yes)	760(89.6)	806(95.0)	423(89.8)	449(95.3)	429(91.1)
D. Teenagers cannot get AIDS (No)	681(80.3)	750(88.4)	390(82.8)	429(91.1)	413(87.7)
E. A person can be infected with the AIDS virus and not have the disease AIDS (Yes)	155(18.3)	115(13.6)	76(16.1)	56(11.9)	88(18.7)
F. Looking at a person is enough to tell if he or she has the AIDS virus (No)	521(61.4)	553(65.2)	288(61.1)	303(64.3)	317(67.3)
G. A person who has the AIDS virus can look and feel well (Yes)	213(25.1)	328(38.7)	119(25.3)	183(38.9)	181(38.4)
H. A pregnant woman who has the AIDS virus can give the AIDS virus to her baby (Yes)	167(19.7)	248(29.2)	96(20.4)	123(26.1)	134(28.5)
I. There is a vaccine available to the public that protects a person from getting the AIDS virus (No)	502(59.2)	687(81.0)	289(61.4)	395(83.9)	334(70.9)
J. There is no cure for AIDS at present (Yes)	466(55.0)	661(77.9)	259(55.0)	369(78.3)	287(60.9)
Total cognitive knowledge score	M (SD) 50.42(15.49)	M (SD) 64.17(14.92)	M (SD) 50.91(14.93)	M (SD) 64.42(13.84)	M (SD) 57.32(14.88)

Mean Percentage of AIDS Transmission Knowledge (n=848 pre and immediate post-test), (n=471 pre, immediate post, and 12 months post-test).

Overall AIDS transmission knowledge improved significantly from pre-test (M=66.68, SD =20.88) to immediate post-test (M =79.01, SD =17.07) for the original sample of 848 subjects. The pre and post-test scores were analyzed separately for the 471 participants with the results demonstrating similar means at the pre-test (M=66.32, SD = 20.99) and immediate post-test (M=80.02, SD = 16.83) when compared to the entire group (848). At the 12 months post-test, the scores decreased from the immediate post-test (M =76.20, SD =18.88) but were still significantly higher than the pre-test scores for the remaining 471 participants (paired t-test at $p<0.001$; See Table 5-3 and see table 5-5 for paired t-test results). One exception was question P,

"using public toilets," which was correctly answered by 15.1% of the nurses in the pre-test, decreased to 7.2% in the immediate post-test, and increased slightly to 9.8% in the 12 months post-test, and overall had a poor percentage of correct responses. Other exceptions were question S, "attending school with a child who has the AIDS virus," and question U, "having sex with a person who has the AIDS virus," both of which had slightly increased correct response percentages in 12 months post-test (See Table 5-3).

Table 5-3 Frequency and Mean Percentage of Transmission Knowledge regarding AIDS with correct answer in ( ) (n=848 pre and post-test), (n=471 pre, post, and 12 months post-test)

CDC Transmission knowledge of AIDS	Correct Responses				
	(n=848) %		(n=471) %		
	Pretest (n=848)	Immediate Post-test (n=848)	Pretest (n=471)	Immediate Post-test (n=471)	12 Months Post-test (n=471)
A person will get AIDS virus or the AIDS virus infection from:					
K. living near a home or hospital for AIDS patients (No)	619(73.0)	720(84.9)	347(73.7)	405(86)	385(81.7)
L. working near someone with the AIDS virus (No)	632(74.5)	718(84.7)	348(73.9)	405(86)	386(82)
M. eating in a restaurant where the cook has the AIDS virus (No)	580(68.4)	697(82.2)	326(69.2)	395(83.9)	358(76)
N. shaking hands, touching, or kissing on the cheek someone who has the AIDS virus (No)	686(80.9)	789(93.0)	375(79.6)	436(92.6)	421(89.4)
O. sharing plates, forks, or glasses with someone who has the AIDS virus (No)	377(44.5)	745(87.9)	198(42.0)	415(88.1)	403(85.6)
P. using public toilets (No)	128(15.1)	61(7.2)	68(14.4)	33(7.0)	46(9.8)
Q. sharing needles for drug use with someone who has the AIDS virus (Yes)	728(85.8)	776(91.5)	409(86.8)	436(92.6)	422(89.6)
R. being near someone who coughs or sneezes and has the AIDS virus (No)	495(58.4)	621(73.2)	267(56.7)	357(75.8)	324(68.8)
S. attending school with a child who has the AIDS virus (No)	644(75.9)	736(86.8)	357(75.8)	415(88.1)	412(87.5)
T. mosquitoes or other insects (No)	554(65.3)	721(85.0)	308(65.4)	406(86.2)	351(74.5)
U. having sex with a person who has the AIDS virus (Yes)	777(91.6)	786(92.7)	433(91.9)	443(94.1)	440(93.4)
Total AIDS transmission knowledge score	M (SD) 66.68(20.88)	M (SD) 79.01(17.07)	M (SD) 66.32(20.99)	M (SD) 80.02(16.83)	M (SD) 76.20(18.18)

Mean Percentage of Overall HIV/AIDS Knowledge Score (n=848 pre and post-test), (n=471 pre, post, and 12 months post-test)

Overall HIV/AIDS knowledge had improved from pre-test (M=58.94, SD=14.68) to immediate post-test (M=71.95, SD=13.03) for the original sample of 848 subjects. The pre and immediate post-test scores were analyzed separately for the 471 participants with the results demonstrating similar means at the pre-test (M=58.98, SD = 14.63) and immediate post-test (M=72.59, SD = 12.31) when compared to the entire group (848). At the 12 months post-test, the scores decreased from the immediate post-test (M=67.21, SD=13.39) but were still significantly higher than the pre-test scores for the remaining 471 participants (paired t-test at $p<0.001$; See Table 5-4 and see table 5-5 for paired t-test results). Participants who had dropped out at 12 months follow-up had similar mean percentages than those who remained in the study. In fact their scores were only slightly lower than those who remained in the study (See Table 5-4).

Table 5-4 Mean Percentage of Cognitive, Transmission, and Overall Knowledge regarding HIV/AIDS among Nurses (n=848 pre and post-test), (n=471 pre, post, and 12 months post-test) (Dropped out n=377).

CDC Questionnaire	Every One in the Study (n=848)		Remained in the Study at 12 Months Follow-up (471)			Dropped Out at 12 Months (377)	
	Pretest Mean (SD) n=848	Immediate Post-test Mean (SD) n= 848	Pretest Mean (SD) n=471	Immediate Post-test Mean (SD) n= 471	12 Months Post-test Mean (SD) n=471	Pretest Mean (SD) n=377	Immediate Post-test Mean (SD) n= 377
Cognitive AIDS	50.42(15.49)	64.17(14.92)	50.91(14.93)	64.42(13.84)	57.32(14.88)	49.81(16.17)	63.87(16.17)
AIDS Transmission	66.68(20.88)	79.01(17.07)	66.32(20.99)	80.02(16.83)	76.20(18.18)	67.13(20.76)	77.74(17.31)
Overall Knowledge	58.94(14.68)	71.95(13.03)	58.98(14.63)	72.59(12.31)	67.21(13.39)	58.89(14.76)	71.14(13.85)

Specific Aims for Immediate Outcome 1 and 12 Months Later Outcome 1

Effectiveness of Structured Teaching Program

A paired t-test, assessed effectiveness of the structured teaching program. Results revealed that the "t" values were highly significant for cognitive, transmission, and overall knowledge regarding AIDS among nurses at $p<0.001$. The scores were significantly improved from pretest to immediate post-test (n=848) and pretest to12 months post-test (n= 471) but significantly decreased from immediate post-test to 12 months post-test (n=471) (See Table 5-5).

Table 5-5 Effectiveness of Structured Teaching Program

Knowledge Aspects	(Pre, and Immediate Post Test) (n=848)		(Pre, and 12 months Post Test) (n=471)		Immediate Post, and 12 months Post Test) (n=471)	
	Improvement score Mean (SD)	Paired t value & p value	Improvement score Mean (SD)	Paired t value & p value	Improvement score Mean (SD)	Paired t value & p value
Cognitive AIDS	13.75 (16.57)	t = 24.158, p=0.000 ***	6.41(18.44)	t = 7.546, p=0.000 ***	-7.09 (17.93)	t = 8.583, p=0.000 ***
AIDS Transmission	12.33 (19.71)	t = 18.212, p=0.000 ***	9.88(25.43)	t = 8.434, p=0.000 ***	-3.82 (23.29)	t = 3.561, p=0.000 ***
Overall Knowledge	13.01(13.65)	t = 27.739, p=0.000 ***	8.22(16.91)	t = 10.562, p=0.000 ***	-5.37 (15.90)	t = 7.341, p=0.000 ***

Note: *** - p<0.001 Level of Significance

Cognitive, Transmission, and Overall Knowledge Trend: Estimates of Fixed Effects

In the trend analysis, estimates were positive, and revealed that cognitive, transmission, and overall knowledge differed over time. In fact, the analysis showed that the corresponding responses improved over time ($p<0.001$) (See Table 5-6). In addition, paired t-test showed that the scores declined from immediate post-test to 12 months post-test ($p<0.001$) (See Table 5-5).

Table 5-6 Cognitive, Transmission, and Overall Knowledge Trend: Estimates of Fixed Effects (Pre and Immediate post-test correlation n=848) (Immediate post-test and 12 months post-test n=471)

Outcome	Estimate	Std. Error	p value	95% Confidence Interval	
				Lower Bound	Upper Bound
Cognitive Knowledge	57.280171	.402221	.001	56.490642	58.069701
Transmission Knowledge	73.503381	.498047	.001	72.525783	74.480980
Overall Knowledge	65.683279	.379075	.001	64.939201	66.427357

Note: *** - p<0.001 Level of Significance
Variables: Cognitive with count, transmission with count, and overall with count

Specific Aims for Immediate Outcome 2 and 12 Months Follow-up Outcome 3

Association between cognitive, transmission, and overall knowledge regarding AIDS among nurses and demographic variables in Pretest, Immediate Post-test, and 12 months Post-test (Pre, Immediate post-test n=848, and 12 months post-test n=471)

An ANOVA with Bonferroni correction for variables that have more than three subcategories was performed using SPSS software to determine if cognitive, transmission, and overall knowledge were associated with demographic variables.

Pretest (n=848)

Nurses' age group had a statistically significant association with cognitive, transmission, and overall knowledge (ANOVA p value = 0.001, 0.004, and <0.001 respectively). ANOVA indicated that nurses less than 25 years old had higher mean scores in the cognitive knowledge than nurses with other age groups. Pairwise analysis with Bonferroni correction revealed that nurses less than 25 years old had significant association with cognitive knowledge in the following pairs: < 25 years/ 26-30 years, < 25 years/31-35 years Bonferroni p [B-p]= 0.009, 0.030). Nurses over 40 years old had higher mean scores in the transmission and overall

knowledge. Pairwise analysis with Bonferroni correction revealed that nurses less than 25 years old and over 40 years of age had significant association with transmission knowledge and overall knowledge in the following pairs: 31-35yrs /< 25yrs, 31-35yrs / >40yrs [B-p]= 0.005, 0.009, 0.000,and 0.000 respectively). Nurses' marital status had a statistically significant association with cognitive and overall knowledge (ANOVA p value=0.001, and <0.01 respectively). Study findings revealed that single nurses had higher mean scores in the cognitive and overall knowledge.

Nurses' primary hospital affiliation had a statistically significant association with cognitive and overall knowledge (ANOVA p value <0.001, and 0.040 respectively). Study results revealed that nurses from PSG hospital had higher mean scores in the cognitive and overall knowledge. Pairwise analysis with Bonferroni correction revealed that nurses from PSG and KMCH had significant association with cognitive knowledge in the following pairs: GKNM/PSG, GKNM/KMCH [B-p] = 0.000, 0.000). Nurses' educational qualification had a statistically significant association with cognitive, transmission, and overall knowledge (ANOVA p value = 0.001, 0.005, and <0.001 respectively). ANOVA indicated that nurses with a Bachelor of Science in Nursing (BSN) had a higher mean score in the cognitive, transmission, and overall knowledge than nurses who had a General Nursing Midwifery (GNM) diploma. Also, nurses' job title had a statistically significant association with cognitive knowledge (ANOVA p <0.01). Results revealed that nursing interns had higher pre-test mean scores in cognitive knowledge.

Nurses' work unit had a statistically significant association with cognitive and overall knowledge (ANOVA p value = 0.001 and <0.05). ANOVA indicated that nurses working at other units such as: Cardiology, Ortho, Labor and Delivery, OB, ER, and Blood Bank units had

higher pre-test mean scores in cognitive knowledge and nurses working on a surgical unit had higher pre-test mean scores in overall knowledge. Pairwise analysis with Bonferroni correction revealed that nurses working in other units had significant association with cognitive knowledge in the following pairs: Other-Unit/ ICU, Other-Unit/Oncology [B-p]= 0.000, 0.023). Also, nurses' experience had a statistically significant association with cognitive, transmission, and overall knowledge (ANOVA p value = 0.002, 0.002, and <0.001 respectively). Study findings revealed that nursing interns with no experience had higher pre-test mean scores in the cognitive knowledge, and those over 20 years of experience had higher pre-test mean scores in transmission and overall knowledge. Pairwise analysis with Bonferroni correction revealed that nurses with no experience had significant association with cognitive knowledge in the following pairs: 6-10 yrs/ 0yrs, 6-10 yrs/ <5yrs, ([B-p]= 0.000, 0.020). Further pairwise analysis with Bonferroni correction revealed that nurses with over 20 years of experience had significant association with transmission knowledge in the following pair: 6-10 yrs/ <5yrs, ([B-p]= 0.001). and with overall knowledge in the following pairs: 6-10 yrs/ 0yrs, 6-10 yrs/ <5yrs, and 6-10yrs/16-20yrs ([B-p]= 0.001, 0.000,and 0.047) (See Table 5-7 and 5-7a).

Table 5-7 Association between Cognitive, Transmission, and overall Knowledge on AIDS and Demographic variables among Nurses in Pretest (n=848)

Variables	Cognitive		Transmission		Overall	
	Mean(SD)	ANOVA test F and p value	Mean(SD)	ANOVA test F and p value	Mean(SD)	ANOVA test F and p value
Demographic Variables						
Age in years						
a) < 25 yrs	52.06(14.90)	F = 4.729,	67.68(18.99)	F = 3.937,	60.25(13.36)	F = 5.755,
b) 26 – 30 yrs	47.50(16.99)	p=	66.30(23.18)	p=	57.35(16.28)	p= 0.000***
c) 31 – 35 yrs	46.45(14.39)	0.001***	58.85(24.86)	0.004**	52.94(16.73)	
d) 36 – 40 yrs	47.44(15.60)		64.48(22.78)		56.37(16.40)	
e) > 40 yrs	51.62(15.73)		72.73(21.53)		62.68(15.00)	
Gender						
a) Male	50.89(16.49)	F = 0.043,	66.87(20.89)	F = 0.004,	59.26(16.04)	F = 0.022,
b) Female	50.40(15.44)	p= 0.836 (N.S)	66.67(20.89)	p= 0.951 (N.S)	58.92(14.61)	p= 0.881 (N.S)
Religion						
a) Hindu	49.66(15.08)	F = 1.625,	67.38(20.13)	F = 1.201,	58.94(14.15)	F = 0.030,
b) Christian	51.03(15.94)	p= 0.203	65.80(21.56)	p= 0.273	58.76(15.19)	p= 0.862 (N.S)
c) Muslim	0	(N.S)	0	(N.S)	0	
Marital Status						
a) Single	51.83(15.25)	F = 14.847,	67.20(19.55)	F = 1.097,	59.88(13.89)	F = 7.354,
b) Married	47.48(15.61)	p= 0.000***	65.59(23.42)	p= 0.295 (N.S)	56.97(16.05)	p= 0.007**
Work & Education Related Variables						
Hospitals						
a) PSG	55.08(14.70)	F = 19.744,	66.15(18.25)	F = 0.321,	60.88(13.28)	F = 3.224,
b) GKNM	47.85(15.54)	p= 0.000***	67.13(22.53)	p= 0.725	57.95(15.54)	p= 0.040*
c) KMCH	53.87(14.32)		65.76(17.64)	(N.S)	60.10(12.82)	
Degree Completed						
a) GNM	47.47(15.25)	F = 62.066,	65.20(22.68)	F = 8.083,	56.76(15.38)	F = 36.702,
b) BSN	55.97(14.39)	p= 0.000***	69.46(16.68)	p= 0.005**	63.03(12.27)	p= 0.000***
Job Title		F = 7.095,		F = 0.103,		F = 1.197,
a) Nurse	49.72(15.86)	p= 0.008**	66.80(21.70)	p= 0.748	58.66(15.23)	p= 0.274 (N.S)
b) Nursing Intern	53.25(13.56)		66.22(17.27)	(N.S)	60.05(12.19)	
Work Unit						
a) Administration	0	F = 4.772,	0	F = 0.976,	0	F = 2.387,
b) ICU	47.27(15.40)	p= 0.000***	67.71(21.89)	p= 0.440	57.98(15.19)	p= 0.037*
c) Med & Sur	46.33(15.64)		61.97(24.60)	(N.S)	54.52(16.15)	(N.S)
d) Surgical	51.21(17.28)		70.80(21.89)		61.47(15.72)	
e) Oncology	45.32(16.92)		68.28(24.34)		57.35(17.87)	
f) Pediatrics	48.41(14.51)		63.77(22.24)		56.45(14.20)	
g) Other (Cardiology, Ortho, Labor and Delivery, OB, ER, Blood Bank, Multi Unit)	52.76(15.00)		66.81(19.27)		60.12(13.75)	
Clinical Experience						
a) 0	53.41(13.42)		66.31(17.26)		60.17(12.16)	
b) < 5 yrs	50.71(15.77)	F = 3.914,	68.49(20.01)	F = 3.876,	60.02(14.13)	F = 5.200,
c) 6-10 yrs	45.85(16.23)	p= 0.002**	60.20(24.98)	p= 0.002**	53.37(17.32)	p=
d) 11-15 yrs	48.61(15.33)		64.14(25.71)		56.75(17.79)	0.000***
e) 16-20 yrs	52.05(14.72)		69.46(20.27)		61.17(14.14)	
f) > 20 yrs	49.50(16.69)		72.27(22.17)		61.43(14.32)	

Note: * - p<0.05, ** - p<0.01, *** - p<0.001 Level of Significance, N.S. - Not Significance

Table 5-7a Association between Cognitive, Transmission, and overall Knowledge on AIDS and Demographic variables among Nurses in Pretest with Bonferroni Correction (n=848)

Variables	Cognitive				Transmission				Overall			
	Mean(SD)	ANOVA test F and p value	Pairwise Analysis with Bonferroni	Bonfe-rroni p value	Mean(SD)	ANOVA test F and p value	Pairwise Analysis with Bonferroni	Bonfe-rroni p value	Mean(SD)	ANOVA test F and p value	Pairwise Analysis with Bonferroni	Bonfe-rroni p value
Demographic Variables												
Age in years		F = 4.729,	< 25yrs/26-30yrs	**0.009**		F = 3.937,	31-35yrs/ < 25yrs	**0.005**		F = 5.755,	31-35yrs/< 25yrs	**0.000**
a) < 25 yrs	**52.06(14.90)**	p=			67.68(18.99)	p=			60.25(13.36)	p=		
b) 26 – 30 yrs	47.50(16.99)	**0.001*** **			66.30(23.18)	**0.004** **			57.35(16.28)	**0.000*** **		
c) 31 – 35 yrs	46.45(14.39)		< 25yrs/31-35yrs	**0.030**	58.85(24.86)		31-35yrs/>40yrs	**0.009**	52.94(16.73)		31-35yrs/>40yrs	**0.009**
d) 36 – 40 yrs	47.44(15.60)				64.48(22.78)				56.37(16.40)			
e) > 40 yrs	51.62(15.73)				**72.73(21.53)**				**62.68(15.00)**			
Marital Status		F =				F = 1.097,				F = 7.354,		
a) Single	**51.83**(15.25)	14.847,			**67.20**(19.55)	p= 0.295			**59.88**(13.89)	p=		
b) Married	47.48(15.61)	p=			65.59(23.42)	(N.S)			56.97(16.05)	**0.007** **		
		0.000* **										
Work & Education Related Variables												
Hospitals		F =	GKNM/ PSG	**0.000**		F = 0.321,				F = 3.224,		
a) PSG	**55.08(14.70)**	19.744,			66.15(18.25)	p= 0.725			**60.88(13.28)**	p= **0.040***		
b) GKNM	47.85(15.54)	p=	GKNM/ KMCH	**0.000**	67.13(22.53)	(N.S)			57.95(15.54)			
c) KMCH	53.87(14.32)	**0.000*** **			65.76(17.64)				60.10(12.82)			
Degree Completed		F = 62.066,				F = 8.083, p=				F = 36.702,		
a) GNM	47.47(15.25)	p=			65.20(22.68)	**0.005** **			56.76(15.38)	p=		
b) BSN	**55.97(14.39)**	**0.000*** **			**69.46(16.68)**				**63.03(12.27)**	**0.000*** **		
Job Title		F = 7.095,				F = 0.103,				F = 1.197,		
a) Nurse	49.72(15.86)	p=			66.80(21.70)	p= 0.748			58.66(15.23)	p= 0.274		
b) Nursing Intern	**53.25(13.56**)	**0.008** **			66.22(17.27)	(N.S)			60.05(12.19)	(N.S)		
Work Unit												
a) Administration	0	F = 4.772,	Other-Unit/ ICU	**0.000**	0	F = 0.976,			0	F = 2.387,		
b) ICU	47.27(15.40)	p=			67.71(21.89)	p= 0.440			57.98(15.19)	p= **0.037***		
c) Med & Sur	46.33(15.64)	**0.000*** **			61.97(24.60)	(N.S)			54.52(16.15)	(N.S)		
d) Surgical	51.21(17.28)		Other-Unit/ Oncology	**0.023**	70.80(21.89)				**61.47(15.72)**			
e) Oncology	45.32(16.92)				68.28(24.34)				57.35(17.87)			
f) Pediatrics	48.41(14.51)				63.77(22.24)				56.45(14.20)			
g) Other Units	**52.76(15.00)**				66.81(19.27)				60.12(13.75)			
Clinical Experience		F = 3.914,	6-10yrs /0yrs	**0.000**			6-10yrs/ <5yrs	**0.001**			6-10yrs/0yrs	**0.001**
a) 0	**53.41(13.42)**	p=			66.31(17.26)	F = 3.876,			60.17(12.16)	F = 5.200,		
b) < 5 yrs	50.71(15.77)	**0.002** **	6-10yrs/ <5yrs	**0.020**	68.49(20.01)	p=			60.02(14.13)	p=	6-10yrs/<5yrs	**0.000**
c) 6-10 yrs	45.85(16.23)				60.20(24.98)	**0.002** **			53.37(17.32)	**0.000*** **		
d) 11-15 yrs	48.61(15.33)				64.14(25.71)				56.75(17.79)		6-10yrs/16-20yrs	**0.047**
e) 16-20 yrs	52.05(14.72)				69.46(20.27)				61.17(14.14)			
f) > 20 yrs	49.50(16.69)				**72.27(22.17)**				**61.43(14.32)**			

Note: * - p<0.05, ** - p<0.01, *** - p<0.001 Level of Significance, N.S. - Not Significance, *. The mean difference for the **pairwise analysis** is significant at the 0.05 level.

* Other Units: (Cardiology, Ortho, Labor and Delivery, OB, ER, Blood Bank, Multi Unit)

Immediate Post-test (n=848)

Nurses' primary hospital affiliation had a statistically significant association with cognitive, transmission, and overall knowledge in the post-test (ANOVA p values = 0.002, 0.049, and <0.01 respectively). ANOVA indicated that nurses from PSG hospital had higher immediate post-test mean scores in cognitive and overall knowledge, and nurses from KMCH had higher immediate post-test mean scores in transmission knowledge. Pairwise analysis with Bonferroni correction revealed that nurses from PSG had a significant association with cognitive knowledge and in the following pairs: GKNM/PSG, PSG/KMCH, [B-p] = 0.001, 0.023) and with overall knowledge in the following pair GKNM/PSG, [B-p] = 0.011). Nurses' educational qualification had a statistically significant association with cognitive, transmission, and overall knowledge with all corresponding p values < 0.001. Study findings revealed that BSN nurses had higher immediate post-test mean scores in cognitive, transmission, and overall knowledge. Nurses' work unit had a statistically significant association with cognitive, transmission, and overall knowledge (ANOVA p= 0.007. 0.015, and < 0.01 respectively). ANOVA indicated that nurses working in an oncology unit had higher immediate post-test mean scores in cognitive and overall knowledge, and nurses working in the ICU had higher immediate post-test mean scores in transmission knowledge. Bonferroni correction further ensured significant association among the nurses working in oncology with cognitive knowledge [B-p]= 0.044). Nurses working in ICU had a significant association with transmission knowledge in the following pair: ICU/Med & Surg, ([B-p]= 0.028). Nurses working in other units had a significant association with overall knowledge in the following pair: Other-Unit/ Med & Surg ([B-p]= 0.049).

Also, nurses' experience had a statistically significant association with transmission and overall knowledge (ANOVA p value = 0.003 and <0.05 respectively). Study findings indicated that the nurses with 16-20 years of experience had higher immediate post-test mean scores in

transmission and overall knowledge. Pairwise analysis with Bonferroni correction revealed that nurses with no experience and 16-20 years of experience had a significant association with transmission knowledge in the following pairs: 6-10 yrs/0yrs, 6-10 yrs/ 16-20yrs, ([B-p]= 0.037, 0.032). Further pairwise analysis with Bonferroni correction revealed that nurses with 16-20 years of experience had a significant association with overall knowledge in the following pair: 6-10 yrs/ 16-20yrs, ([B-p]= 0.029) (See Table 5-8 and 5-8a).

Table 5-8 Association between Cognitive, Transmission, and Overall Knowledge on HIV/AIDS and Demographic Variables among Nurses in the Immediate Post-test (n=848)

Variables	Cognitive		Transmission		Overall	
	Mean(SD)	ANOVA test F and p value	Mean(SD)	ANOVA test F and p value	Mean(SD)	ANOVA test F and p value
Demographic Variables						
Age in years						
a) < 25 yrs	64.58(14.74)	F = 2.239,	79.89(16.43)	F = 1.506,	72.60(12.64)	F = 1.863,
b) 26 – 30 yrs	61.46(16.77)	p= 0.063 (N.S)	77.94(17.09)	p= 0.198	70.09(13.66)	p= 0.115 (N.S)
c) 31 – 35 yrs	64.21(14.54)		75.12(20.10)	(N.S)	69.92(14.51)	
d) 36 – 40 yrs	66.28(11.96)		79.28(17.44)		73.09(12.68)	
e) > 40 yrs	67.84(10.84)		78.87(18.31)		73.62(12.22)	
Gender						
a) Male	62.00(16.60)	F =1.010,	81.41(14.50)	F = 0.943,	72.17(13.62)	F = 0.014,
b) Female	64.30(14.82)	p= 0.315 (N.S)	78.87(17.20)	p= 0.332 (N.S)	71.93(13.00)	p= 0.906 (N.S)
Religion						
a) Hindu	64.90(14.31)	F = 2.165,	79.19(16.35)	F = 0.154,	72.39(12.35)	F = 1.145,
b) Christian	63.38(15.54)	p= 0.142 (N.S)	78.72(17.86)	p= 0.695	71.42(13.74)	p= 0.285 (N.S)
c) Muslim	0		0	(N.S)	0	
Marital Status						
a) Single	63.95(15.13)	F = 0.386,	79.22(16.98)	F = 0.272,	71.95(12.99)	F = 0.000,
b) Married	64.64(14.48)	p= 0.535 (N.S)	78.57(17.29)	p= 0.602 (N.S)	71.93(13.14)	p= 0.984 (N.S)
Work & Education Related Variables						
Hospitals						
a) PSG	67.74(14.90)	F = 6.479,	80.07(16.21)	F = 3.020,	74.20(12.21)	F = 4.681,
b) GKNM	63.21(14.80)	p= 0.002**	77.93(17.92)	p= 0.049*	70.92(13.52)	p= 0.010**
c) KMCH	63.33(14.78)		81.52(14.65)		72.86(11.84)	
Degree Completed						
a) GNM	62.30(14.91)	F = 25.944,	76.71(18.76)	F = 29.938	69.84(13.93)	F= 43.413,
b) BSN	67.69(14.29)	p= 0.000***	83.33(12.26)	p= 0.000***	75.88(10.05)	p= 0.000***
Job Title						
a) Nurse	03.95(14.81)	F = 0.793,	78.44(17.66)	F = 3.746,	71.54(13.28)	F =3.292,
b) Nursing Intern	65.09(15.36)	p= 0.374 (N.S)	81.28(14.30)	p= 0.053 (N.S)	73.57(11.85)	p= 0.070 (N.S)
Work Unit						
a) Administration	0	F = 3.217,	0	F = 2.843,	0	F = 3.209,
b) ICU	62.42(14.32)	p= 0.007**	80.94(14.83)	p= 0.015*	72.12(12.20)	p= 0.007**
c) Med & Sur	61.22(14.95)		72.36(19.72)		67.06(13.57)	
d) Surgical	64.85(13.49)		79.61(17.61)		72.58(13.04)	
e) Oncology	68.09(14.39)		77.18(18.94)		72.85(14.28)	
f) Pediatrics	59.71(16.62)		75.36(19.85)		67.91(14.87)	
g) Other (Cardiology, Ortho, Labor and Delivery, OB, ER, Blood Bank, Multi Unit)	65.20(14.84)		79.66(16.57)		72.77(12.63)	
Clinical Experience						
a) 0	65.12(15.32)		81.28(14.25)		73.59(11.81)	
b) < 5 yrs	63.79(15.18)	F = 1.082,	79.26(17.02)	F = 3.591,	71.90(13.09)	
c) 6-10 yrs	62.52(15.20)	p= 0.369 (N.S)	75.35(18.61)	p= 0.003**	69.24(13.79)	F = 2.867,
d) 11-15 yrs	66.11(13.79)		76.01(20.97)		71.30(15.46)	p= 0.014*
e) 16-20 yrs	67.44(10.44)		84.85(13.25)		76.56(09.03)	
f) > 20 yrs	66.00(12.31)		72.73(22.27)		69.52(15.01)	

Note: * - p<0.05, ** - p<0.01, *** - p<0.001 Level of Significance, N.S. – Not Significance

Table 5-8a Association between Cognitive, Transmission, and Overall Knowledge on HIV/AIDS and Demographic Variables among Nurses in the Immediate Post-test with Bonferroni Correction (n=848)

Variables	Cognitive				Transmission				Overall			
	Mean(SD)	ANOVA test F and p value	Pairwise Analysis with Bonferroni	Bonfe-rroni p value	Mean(SD)	ANOVA test F and p value	Pairwise Analysis with Bonferroni	Bonfe-rroni p value	Mean(SD)	ANOVA test F and p value	Pairwise Analysis with Bonferroni	Bonfe-rroni p value
Demographic Variables												
No Association												
Work & Education Related Variables												
Hospitals		F =	PSG/	**0.001**		F =				F =	PSG/GKNM	**0.011**
a) PSG	**67.74(14.90)**	6.479,	GKNM		80.07(16.21)	3.020,			**74.20(12.21)**	4.681,		
b) GKNM	63.21(14.80)	p=			77.93(17.92)	p=			70.92(13.52)	p=		
c) KMCH	63.33(14.78)	**0.002****	PSG/KMCH	**0.023**	**81.52(14.65)**	**0.049***			72.86(11.84)	**0.010****		
Degree Completed		F = 25.944,				F = 29.938				F= 43.413,		
a) GNM	62.30(14.91)	p=			76.71(18.76)	p=			69.84(13.93)	p=		
b) BSN	**67.69(14.29)**	**0.000*****			**83.33(12.26)**	**0.000*****			**75.88(10.05)**	**0.000*****		
Work Unit												
a) Administration	0	F =	Oncology/ Pediatrics	**0.044**	0	F =	ICU/ Med & Sur	**0.028**	0	F =	Other-Unit/ Med & Sur	**0.049**
b) ICU	62.42(14.32)	3.217,			**80.94(14.83)**	2.843,			72.12(12.20)	3.209,		
c) Med & Sur	61.22(14.95)	p=			72.36(19.72)	p=			67.06(13.57)	p=		
d) Surgical	64.85(13.49)	**0.007****			79.61(17.61)	**0.015***			72.58(13.04)	**0.007****		
e) Oncology	**68.09(14.39)**				77.18(18.94)				**72.85(14.28)**			
f) Pediatrics	59.71(16.62)				75.36(19.85)				67.91(14.87)			
g) Other Units	65.20(14.84)				79.66(16.57)				**72.77(12.63)**			
Clinical Experience												
a) 0	65.12(15.32)	F =			**81.28(14.25)**	F =	6-10yrs/0yrs	**0.037**	73.59(11.81)	F		
b) < 5 yrs	63.79(15.18)	1.082,			79.26(17.02)	3.591,			71.90(13.09)	=2.867,	6-10yrs/16-20yrs	**0.029**
c) 6-10 yrs	62.52(15.20)	p= 0.369			75.35(18.61)	p=	6-10yrs/16-20yrs	**0.032**	69.24(13.79)	p=		
d) 11-15 yrs	66.11(13.79)	(N.S)			76.01(20.97)	**0.003****			71.30(15.46)	**0.014***		
e) 16-20 yrs	67.44(10.44)				**84.85(13.25)**				**76.56(09.03)**			
f) > 20 yrs	66.00(12.31)				72.73(22.27)				69.52(15.01)			

Note: * - p<0.05, ** - p<0.01, *** - p<0.001 Level of Significance, N.S. - Not Significance,

* The mean difference for the **pairwise analysis** is significant at the 0.05 level.

* Other Units: (Cardiology, Ortho, Labor and Delivery, OB, ER, Blood Bank, Multi Unit)

Twelve Months Post-Test (n=471)

Nurses' age group had a statistically significant association with transmission knowledge (ANOVA p <0.05). ANOVA indicated that nurses less than 25 years old had higher 12 months post-test mean scores in transmission knowledge.

Nurses' marital status had a statistically significant association with transmission knowledge (ANOVA p value <0.05). ANOVA indicated that single nurses had higher 12 months post-test mean scores in the transmission knowledge. Nurses' primary hospital affiliation had a statistically significant association with transmission and overall knowledge with all corresponding p values < 0.001. Study findings revealed that KMCH nurses had higher 12 months post-test mean scores in transmission and overall knowledge. Pairwise analysis with Bonferroni correction revealed that nurses from PSG and KMCH had a significant association with transmission in the following pairs: GKNM/PSG, GKNM/KMCH, ([B-p] = 0.006, 0.004) and with overall knowledge in the same pairs: GKNM/PSG, GKNM/KMCH ([B-p] = 0.018, 0.004). Nurses' educational qualification had a statistically significant association with transmission and overall knowledge with all corresponding p values < 0.05. ANOVA indicated that BSN nurses had higher 12 months post-test mean scores in transmission and overall knowledge. Also, nurses' experience had a statistically significant association with transmission and overall knowledge (ANOVA p value = 0.001, and <0.01 respectively). Results indicated that the nurses with < 5 years of experience had higher 12 months post-test mean scores in transmission and overall knowledge. Pairwise analysis with Bonferroni correction revealed that nurses with <5 yrs of experience had a significant association with transmission and overall knowledge in the following pair: 6-10 yrs/<5yrs, ([B-p]= 0.005, 0.018 (See Table 5-9 and 5-9a).

Table 5-9 Association between Cognitive, Transmission, and Overall Knowledge on HIV/AIDS and Demographic Variables among Nurses in 12 months Post-test (n=471)

Variables	Cognitive		Transmission		Overall	
	Mean(SD)	ANOVA test F and p value	Mean(SD)	ANOVA test F and p value	Mean(SD)	ANOVA test F and p value
Demographic Variables						
Age in years						
a) < 25 yrs	58.02(14.30)	F = 0.433,	78.69(16.49)	F = 2.697,	68.85(12.46)	F = 2.058,
b) 26 – 30 yrs	55.77(17.39)	p= 0.785 (N.S)	73.60(21.03)	p= 0.030*	65.11(15.86)	p= 0.085
c) 31 – 35 yrs	57.29(13.50)		72.11(18.48)		65.05(13.46)	(N.S)
d) 36 – 40 yrs	56.67(16.17)		76.09(22.00)		66.84(14.62)	
e) > 40 yrs	57.65(12.07)		73.26(14.49)		65.83(08.96)	
Gender						
a) Male	53.33(11.77)	F =2.066,	71.72(16.41)	F = 1.746,	62.96(10.00)	F = 2.897,
b) Female	57.57(15.02)	p= 0.151 (N.S)	76.47(18.26)	p= 0.187 (N.S)	67.47(13.53)	p= 0.089 (N.S)
Religion						
a) Hindu	58.41(14.79)	F = 2.049,	77.16(17.34)	F = 0.764,	68.23(13.28)	F = 1.916,
b) Christian	56.42(15.05)	p= 0.153 (N.S)	75.71(18.37)	p= 0.382	66.52(13.23)	p= 0.167
c) Muslim	0		0	(N.S)	0	
Marital Status						
a) Single	57.61(14.75)	F = 0.349,	77.48(17.67)	F = 4.662,	68.02(13.19)	F = 3.412,
b) Married	56.75(15.16)	p= 0.555 (N.S)	73.65(18.96)	p= 0.031*	65.61(13.68)	p= 0.065 (N.S)
Work & Education Related Variables						
Hospitals						
a) PSG	58.18(14.94)	F = 1.661,	79.98(18.41)	F = 8.104,	69.60(12.85)	F = 7.252,
b) GKNM	56.36(15.36)	p= 0.191 (N.S)	73.50(18.78)	p= 0.000***	65.34(14.00)	p= 0.001***
c) KMCH	59.44(13.00)		80.59(14.06)		70.52(10.79)	
Degree Completed						
a) GNM	56.79(15.71)	F = 1.132,	74.63(18.85)	F = 6.503	66.14(13.89)	F = 5.652,
b) BSN	58.31(13.19)	p= 0.288 (N.S)	79.08(16.55)	p= 0.011*	69.19(12.21)	p= 0.018*
Job Title		F = 0.017,		F = 0.595,		F = 0.230,
a) Nurse	57.37(15.30)	p= 0.897 (N.S)	75.89(18.48)	p= 0.441	67.07(13.68)	p= 0.632
b) Nursing Intern	57.14(13.02)		77.52(16.89)	(N.S)	67.82(12.14)	(N.S)
Work Unit						
a) Administration	0	F = 0.562,	0	F = 1.770,	0	F = 1.713,
b) ICU	56.10(14.12)	p= 0.761 (N.S)	75.28(16.37)	p= 0.104	66.14(12.74)	p= 0.147
c) Med & Sur	55.56(15.53)		71.04(21.40)	(N.S)	63.67(16.56)	(N.S)
d) Surgical	56.67(13.90)		74.89(16.74)		66.21(12.22)	
e) Oncology	57.04(14.89)		75.42(17.80)		66.67(13.79)	
f) Pediatrics	56.25(19.31)		71.14(18.74)		64.05(15.88)	
g) Other (Cardiology, Ortho, Labor and Delivery, OB, ER, Blood Bank, Multi Unit)	58.15(14.35)		78.28(18.28)		68.70(12.78)	
Clinical Experience						
a) 0	0(0)	F = 0.504,	0(0)	F = 4.622,	0(0)	F = 3.459,
b) < 5 yrs	57.88(14.61)	p= 0.733 (N.S)	78.47(17.28)	p= 0.001***	68.67(12.72)	= 0.008**
c) 6-10 yrs	55.47(17.34)		70.42(19.66)		63.30(16.47)	
d) 11-15 yrs	55.83(14.02)		70.71(20.86)		63.62(14.04)	
e) 16-20 yrs	57.50(14.14)		77.84(17.11)		68.15(10.29)	
f) > 20 yrs	58.10(12.09)		70.56(15.98)		64.63(10.05)	

Note: * - p<0.05, ** - p<0.01, *** - p<0.001 Level of Significance, N.S. – Not Significance

Table 5-9a Association between Cognitive, Transmission, and Overall Knowledge on HIV/AIDS and Demographic Variables among Nurses in 12 months Post-test with Bonferroni Correction (n=471)

Variables	Cognitive				Transmission				Overall			
	Mean(SD)	ANOVA test F and p value	Pairwise Analysis with Bonferroni	Bonfe-rroni p value	Mean(SD)	ANOVA test F and p value	Pairwise Analysis with Bonferroni	Bonfe-rroni p value	Mean(SD)	ANOVA test F and p value	Pairwise Analysis with Bonferroni	Bonfe-rroni p value
Demographic Variables												
Age in years												
a) < 25 yrs	58.02(14.30)	F =			**78.69(16.49)**	F =			68.85(12.46)	F =		
b) 26 – 30 yrs	55.77(17.39)	0.433,			73.60(21.03)	2.697,			65.11(15.86)	2.058,		
c) 31 – 35 yrs	57.29(13.50)	p= 0.785			72.11(18.48)	p=			65.05(13.46)	p= 0.085		
d) 36 – 40 yrs	56.67(16.17)	(N.S)			76.09(22.00)	**0.030***			66.84(14.62)	(N.S)		
e) > 40 yrs	57.65(12.07)				73.26(14.49)				65.83(08.96)			
Marital Status												
a) Single	57.61(14.75)	F =			**77.48(17.67)**	F =			68.02(13.19)	F =		
b) Married	56.75(15.16)	0.349,			73.65(18.96)	4.662,			65.61(13.68)	3.412,		
		p= 0.555				p=				p= 0.065		
		(N.S)				**0.031***				(N.S)		
Work & Education Related Variables												
Hospitals												
a) PSG	58.18(14.94)	F =			**79.98(18.41)**	F =	GKNM/ PSG	**0.006**	**69.60(12.85)**	F =	GKNM/ PSG	**0.018**
b) GKNM	56.36(15.36)	1.661,			73.50(18.78)	8.104,			65.34(14.00)	7.252,		
c) KMCH	59.44(13.00)	p= 0.191			**80.59(14.06**)	p=	GKNM/		**70.52(10.79)**	p=	GKNM/	**0.004**
		(N.S)				**0.000*****	KMCH	**0.004**		**0.001*****	KMCH	
Degree		F =				F =				F =		
Completed		1.132,				6.503				5.652,		
a) GNM	56.79(15.71)	p= 0.288			74.63(18.85)	p=			66.14(13.89)	p=		
b) BSN	58.31(13.19)	(N.S)			**79.08(16.55)**	**0.011***			**69.19(12.21)**	**0.018***		
Clinical												
Experience		F =				F =				F =		
a) 0	0(0)	0.504,			0(0)	4.622,	6-10yrs/<5yrs	**0.005**	0(0)	3.459,	6-10yrs/<5yrs	**0.018**
b) < 5 yrs	57.88(14.61)	p= 0.733			**78.47(17.28)**	p=			**68.67(12.72)**	=		
c) 6-10 yrs	55.47(17.34)	(N.S)			70.42(19.66)	**0.001*****			63.30(16.47)	**0.008****		
d) 11-15 yrs	55.83(14.02)				70.71(20.86)				63.62(14.04)			
e) 16-20 yrs	57.50(14.14)				77.84(17.11)				68.15(10.29)			
f) > 20 yrs	58.10(12.09)				70.56(15.98)				64.63(10.05)			

Note: * - p<0.05, ** - p<0.01, *** - p<0.001 Level of Significance, N.S. - Not Significance,
*. The mean difference for the **pairwise analysis** is significant at the 0.05 level.

Multiple Regression Analysis for Cognitive, Transmission, and Overall Knowledge on HIV/AIDS and Selected Demographic Variables among Nurses in Pretest (n=848)

Regression analysis was done for multivariate analysis. One or more demographic variables or factors were used to determine the stronger relationships among cognitive, transmission, and overall knowledge of AIDS, which is the outcome of all of the tests.

Pretest

Among the demographic variables, nurses' marital status had a predictive relationship with cognitive and overall knowledge in the pretest at regression p value = 0.000, and <0.01 respectively. Nurses who were single had a stronger relationship with cognitive and overall knowledge than married nurses in the pretest. Among the education- and work-related variables, nursing educational qualification (degree completed) had a predictive relationship with cognitive, transmission, and overall knowledge in the pretest with all corresponding regression p values < 0.001. Nurses with a BSN had a stronger relationship with cognitive, transmission, and overall knowledge than nurses who completed the General Nursing Midwife (GNM). Nurses' work unit had a predictive relationship with cognitive knowledge in the pretest at regression p <0.05. Nurses working at Cardiology, Ortho, Labor and Delivery, OB, ER, and Blood Bank units had a stronger relationship with cognitive knowledge than other work units. Nurses' primary hospital affiliation had a predictive relationship with cognitive and overall knowledge in the pretest at regression p value = 0.000, 0.000, and <0.05 respectively. Among the three hospitals, PSG and KMCH had a stronger relationship with cognitive knowledge in the pretest and PSG in the overall knowledge (see table 5-10).

Table 5-10 Multiple Regression Analysis for Cognitive, Transmission, and Overall Knowledge on AIDS and Selected Demographic Variables among Nurses in Pretest (n=848)

Variables	Cognitive			Transmission			Overall Knowledge		
	Beta Coefficient	t – value	p - value	Beta Coefficient	t - value	p - value	Beta Coefficient	t - value	p - value
Demographic variables									
Age in years									
Gender									
Religion									
Marital Status	-.129	3.767	0.000***				-.089	2.594	0.010**
Adjusted R^2 value	16%						7%		
Work & Education Related Variables									
Hospital									
Degree Completed	0.310	7.184	0.000***	0.159	3.769	0.000***	0.279	6.721	0.000***
Job Title				-.105	2.486	0.013*	-.127	3.060	0.002**
Work Unit	0.085	2.466	0.014*						
Clinical Experience									
Adjusted R^2 value	78%			14%			50%		
Hospitals									
PSG	0.190	5.486	0.000***				0.081	2.305	0.021*
GKNM									
KMCH	0.148	4.283	0.000***						
Adjusted R^2 value	42%						5%		

Note: * - p<0.05, ** - p<0.01, *** - p<0.001 Level of Significance

Immediate Post-test (n=848)

Among the education- and work-related variables, nurses' educational qualification (degree completed) had a predictive relationship with cognitive, transmission, and overall knowledge in the immediate post-test with all corresponding regression p values < 0.001. Nurses who completed a BSN had a stronger relationship in the cognitive, transmission, and overall knowledge in the immediate post-test than nurses who had a GNM. Nurses' clinical experience had a predictive relationship with cognitive and overall knowledge in the immediate post-test with all corresponding regression p values < 0.001. Nurses with 16-20 years of experience had a stronger relationship with cognitive and overall knowledge in the immediate post-test. Primary hospital affiliation had a predictive relationship with cognitive, transmission,

and overall knowledge in the immediate post-test at regression p value = 0.000, 0.023, and <0.01 respectively. Among the three hospitals PSG hospital had a stronger relationship with cognitive and overall knowledge and KMCH with transmission knowledge in the immediate post-test (see table 5-11).

Table 5-11 Multiple Regression Analysis for Cognitive, Transmission, and Overall Knowledge on AIDS and Selected Demographic Variables among Nurses in Immediate Post-test (n=848)

Variables	Cognitive			Transmission			Overall Knowledge		
	Beta Coefficient	t - value	p - value	Beta Coefficient	t - value	p - value	Beta Coefficient	t - value	p - value
Demographic variables									
Age in years									
Gender									
Religion									
Marital Status									
Adjusted R^2 value									
Work & Education Related Variables									
Hospital	-0.100	2.985	0.003**						
Degree Completed	0.248	6.397	0.000***	0.241	5.640	0.000***	0.290	7.307	0.000***
Job Title									
Work Unit									
Clinical Experience	.137	3.536	0.000***				0.105	2.706	0.007**
Adjusted R^2 value	52%			38%			58%		
Hospitals									
PSG	0.123	3.601	0.000***				0.102	2.909	0.004**
GKNM									
KMCH				0.080	2.274	0.023*			
Adjusted R^2 value	14%			5%			9%		

Note: * - p<0.05, ** - p<0.01, *** - p<0.001 Level of Significance

Twelve Months Post-Test (n=471)

Among the demographic variables, nurses' marital status had a predictive relationship with transmission and overall knowledge in the 12 months post-test at regression p value = 0.008 and <0.05 respectively. Single nurses had a stronger relationship to transmission and overall knowledge than married nurses. Among the education and work related variables, nurses

educational qualification (degree completed) had a predictive relationship with transmission and overall knowledge in the 12 months post-test at regression p value = 0.047 and <0.05 respectively. Nurses who completed a BSN had a stronger relationship to transmission and overall knowledge in the 12 months post-test than nurses who had a GNM. Primary hospital affiliation had a predictive relationship with transmission and overall knowledge in the 12 months post-test at regression p value = 0.002, and <0.01 for PSG and all corresponding regression p values < 0.001 for KMCH. Among the three hospitals PSG and KMCH had a stronger relationship with transmission and overall knowledge in the 12 months post-test than GKNM (see table 5-12).

Table 5-12 Multiple Regression Analysis for Cognitive, Transmission, and Overall Knowledge on AIDS and Selected Demographic Variables among Nurses in 12 months Post-test (n=471)

Variables	Cognitive			Transmission			Overall Knowledge		
	Beta Coefficient	t – value	p - value	Beta Coefficient	t - value	p - value	Beta Coefficient	t - value	p - value
Demographic variables									
Age in years									
Gender									
Religion									
Marital Status				-0.123	2.652	0.008**	-.110	2.363	0.019*
Adjusted R^2 value				16%			17%		
Work & Education Related Variables									
Hospital									
Degree Completed				0.124	1.993	0.047*	0.135	2.202	0.028*
Job Title									
Work Unit									
Clinical Experience									
Adjusted R^2 value				16%			13%		
Hospitals									
PSG				0.145	3.100	0.002**	0.130	2.763	0.006**
GKNM									
KMCH				0.153	3.259	0.001***	0.152	3.226	0.001***
Adjusted R^2 value				29%			26%		

Note: * - p<0.05, ** - p<0.01, *** - p<0.001 Level of Significance

Specific Aims for 12 Months Follow-up Outcome 2

AIDS Attitude Scale Result Section

Frequency and Percentage Distribution of Attitude on Avoidance Items among Nurses in 12 months Post-test (n=471)

Avoidance items from the AIDS Attitude Scale include 14 statements, and the participants were asked to respond, using a six-point Likert scale ranging from Strongly Agree (SA) with the numeric value of 6, and Strongly Disagree (SD) with the numeric value of 1. A higher mean in the avoidance items indicates a negative attitude toward the subject of the question. The mean and standard deviation of overall avoidance items were (M =3.13, SD =0.64). The mean scores ranged from 2-3 in most of the avoidance items with few exceptions: question 6 “I think people who are IV drug users deserve to get AIDS” had a higher mean and standard deviation (M =3.82, SD =1.81); question 8 “Homosexuality should be illegal” had a higher mean and standard deviation (M =4.44, SD =1.76); similarly question 9 “I feel more sympathetic toward people who get AIDS from blood transfusions than those who get it from IV drug abuse” had a higher mean and standard deviation as well (M =4.34, SD =1.68) (See Table 5-13).

Table 5-13 Frequency and Percentage Distribution of Attitude on Avoidance Items among Nurses in 12 months Post-test n=471

Avoidance Items	Attitude Level						Attitude score	
	SA	MA	A	D	MD	SD	Mean	S.D.
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)		
Numeric Value in the scoring	**6**	**5**	**4**	**3**	**2**	**1**		
1. Most people who have AIDS have only themselves to blame.	43 (9.1)	53 (11.3)	81 (17.2)	72 (15.3)	61 (13.0)	161 (34.2)	2.86	1.71
2. Most people who have AIDS deserve what they get.	36 (7.6)	44 (9.3)	107 (22.7)	80 (17.0)	70 (14.9)	134 (28.5)	2.93	1.61
3. Patients who are HIV positive should not be put in rooms with other patients.	54 (11.5)	13 (2.8)	64 (13.6)	56 (11.9	38 (8.1)	246 (52.2)	2.41	1.762
4. If I were assigned to a patient with AIDS, I would worry about putting my family and friends at risk of contracting the disease.	23 (4.9	24 (5.1)	70 (14.9)	86 (18.3)	53 (11.3)	215 (45.6)	2.37	1.530
5. Young children should be removed from the home if one of the parents is HIV positive.	19 (4.0)	16 (3.4)	43 (9.1)	87 (18.5)	59 (12.5)	247 (52.4)	2.11	1.421
6. I think people who are IV drug users deserve to get AIDS.	132 (28.0)	44 (9.3)	115 (24.4)	59 (12.5)	31 (6.6)	90 (19.1)	3.82	1.816
7. I think women who give birth to babies who are HIV positive should be prosecuted for child abuse.	65 (13.8)	33 (7.0)	93 (19.7)	80 (17.0)	41 (8.7)	159 (33.8)	2.99	1.779
8. Homosexuality should be illegal.	218 (46.3)	14 (3.0)	138 (29.3)	24 (5.1)	12 (2.5)	65 (13.8)	4.44	1.758
9. I feel more sympathetic toward people who get AIDS from blood transfusions than those who get it from IV drug abuse.	182 (38.6)	42 (8.9)	133 (28.2)	34 (7.2)	30 (6.4)	50 (10.6)	4.34	1.675
10. If I found out that a friend of mine was a homosexual, I would not maintain the friendship.	88 (18.7)	33 (7.0)	112 (23.8)	73 (15.5)	36 (7.6)	129 (27.4)	3.31	1.811
11. I'm worried about getting AIDS from social contact with someone.	35 (7.4)	31 (6.6)	81 (17.2)	82 (17.4)	27 (5.7)	215 (45.6)	2.56	1.672
12. Children or people who get AIDS from blood transfusions are more deserving of treatment than those who get it from IV drug abuse.	89 (18.9)	39 (8.3)	145 (30.8)	68 (14.4)	39 (8.3)	91 (19.3)	3.57	1.696
13. I would be worried about my child getting AIDS if I knew that one of his teachers was a homosexual.	45 (9.6)	26 (5.5)	78 (16.6)	101 (21.4)	39 (8.3)	182 (38.6)	2.71	1.672
14. I have little sympathy for people who get AIDS from sexual promiscuity.	79 (16.8)	36 (7.6)	140 (29.7)	83 (17.6)	29 (6.2)	104 (22.1)	3.45	1.691
Overall	79 (16.8)	32 (6.8)	100 (21.2)	71 (15.1)	40 (8.5)	149 (31.6)		

Frequency and Percentage Distribution of Attitude on Empathy Items among Nurses in 12 months Post-test (n=471)

Empathy items from the AIDS Attitude Scale include 7 statements, and the participants were asked to respond, using a six-point Likert scale ranging from Strongly Agree (SA) with the numeric value of 6, and Strongly Disagree (SD) with the numeric value of 1. A higher mean score indicates a more positive attitude toward the subject of that question. The mean and standard deviation of overall empathy items were (M =4.64, SD =0.94). The mean scores ranged from 3.5-5 in most of the empathy items (See Table 5-14).

Table 5-14 Frequency and Percentage Distribution of Attitude on Empathy Items among Nurses in 12 months Post-test n=471

Empathy Items	Attitude Level						Attitude score	
	SA	MA	A	D	MD	SD	Mean	S.D.
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)		
Numeric Value in the scoring	**6**	**5**	**4**	**3**	**2**	**1**		
15. I think patients with AIDS have the right to the same quality of care as any other patient.	245 (52.0)	37 (7.9)	122 (25.9)	22 (4.7)	15 (3.2)	30 (6.4)	4.82	1.498
16. It is especially important to work with patients with AIDS in a caring manner.	204 (43.3)	47 (10.0)	150 (31.8)	26 (5.5)	11 (2.3)	33 (7.0)	4.65	1.479
17. A homosexual patient's partner should be accorded the same respect and courtesy as the partner of a heterosexual patient.	125 (26.5)	40 (8.5)	144 (30.6)	66 (14.0)	38 (8.1)	58 (12.3)	3.94	1.649
18. Patients with AIDS should be treated with the same respect as any other patient.	256 (54.4)	24 (5.1)	133 (28.2)	16 (3.4)	21 (4.5)	21 (4.5)	4.88	1.438
19. I am sympathetic toward the misery that people with AIDS experience.	133 (28.2)	66 (14.0)	195 (41.4)	43 (9.1)	22 (4.7)	12 (2.5)	4.44	1.258
20. I would like to do something to make life easier for people with AIDS.	204 (43.3)	56 (11.9)	163 (34.6)	23 (4.9)	15 (3.2)	10 (2.1)	4.81	1.252
21. I would do everything I could to give the best possible care to patients with AIDS.	237 (50.3)	45 (9.6)	150 (31.8)	14 (3.0)	8 (1.7)	17 (3.6)	4.93	1.292
Overall	200 (42.5)	45 (9.6)	151 (32.1)	30 (6.4)	19 (4.0)	26 (5.5)		

Specific Aims for 12 Months Follow-up Outcome 4

Association between Avoidance and Empathy items on AIDS Attitude Scale and Demographic variables among Nurses in 12 months Post-test

An ANOVA with Bonferroni correction was performed using SPSS software to determine if avoidance items and empathy items were associated with demographic variables and educational and work related. Total scores for avoidance items and empathy items were calculated for individual participants and the mean scores were obtained using descriptive statistics. Demographic variables had no significant association with avoidance items or empathy items. Among the education and work related variables, nurses' educational qualification had a statistically significant association with empathy items with corresponding p value < 0.05. Findings indicated that BSN nurses had higher mean scores, and a more positive attitude in the empathy items, than GNM prepared nurses. Remaining education and work related variables were not significant (See Table 5-15).

Table 5-15 Association between Avoidance and Empathy items on AIDS Attitude Scale and Demographic variables among Nurses in 12 months Post-test n=471

Variables	Avoidance Items		Empathy Items	
	Mean(SD)	ANOVA test F and p value	Mean(SD)	ANOVA test F and p value
Demographic Variables				
Age in years a) < 25 yrs b) 26 – 30 yrs c) 31 – 35 yrs d) 36 – 40 yrs e) > 40 yrs	 51.53 (10.66) 53.17(11.58) 52.14(10.02) 51.19 (09.62) 55.32(09.68)	 F = 1.248, p= 0.290 (N.S)	 77.69(15.56) 77.72(15.65) 77.36(14.65) 76.81(19.08) 73.88(15.10)	 F = 0.470, p= 0.757 (N.S)
Gender a) Male b) Female	 49.25(10.28) 52.40(10.69)	 F = 2.221, p= 0.137 (N.S)	 82.19(12.90) 77.04(15.73)	 F = 2.776, p= 0.096 (N.S)
Religion a) Hindu b) Christian c) Muslim	 51.68(10.00) 52.56(11.30) 0	 F = 0.794, p= 0.373 (N.S)	 78.30(15.31) 76.28(15.97) 0	 F = 1.938, p= 0.165 (N.S)
Marital Status a) Single b) Married	 51.63(10.98) 53.40(09.99)	 F = 2.898, p= 0.089 (N.S)	 77.90(15.57) 76.21(15.71)	 F = 1.227, p= 0.269 (N.S)
Work & Education Related Variables				
Hospitals a) PSG b) GKNM c) KMCH	 50.89(11.32) 52.89(10.54) 51.58(10.34)	 F = 1.487, p= 0.227 (N.S)	 76.94(15.01) 76.43(16.32) 80.66(13.58)	 F = 2.542, p= 0.080 (N.S)
Degree Completed a) GNM b) BSN	 52.77(11.00) 51.21(10.04)	 F = 2.296 p= 0.130 (N.S)	 76.05(16.15) 79.69(14.35)	 F = 5.899 **p= 0.016***
Job Title a) Nurse b) Nursing Intern	 52.21(11.02) 52.25(09.22)	 F = 0.001, p= 0.978 (N.S)	 77.11(16.11) 78.28(13.42)	 F = 0.417, p= 0.519 (N.S)
Work Unit a) Administration b) ICU c) Med & Sur d) Surgical e) Oncology f) Pediatrics g) Other (Cardiology, Ortho, Labor and Delivery, OB, ER, Blood Bank, Multi Unit)	 0 54.07(11.80) 52.12(09.99) 54.31(08.59) 53.48(10.04) 53.99(10.44) 51.20(10.58)	 F = 1.437, p= 0.209 (N.S)	 0 78.48(15.20) 74.34(14.59) 74.94(15.82) 77.78(15.82) 72.20(17.51) 78.28(15.43)	 F = 1.458, p= 0.202 (N.S)
Clinical Experience a) 0 b) < 5 yrs c) 6-10 yrs d) 11-15 yrs e) 16-20 yrs f) > 20 yrs	 0 51.69(10.99) 53.97(10.21) 49.74(10.50) 53.79(07.74) 55.67(11.00)	 F = 1.916, p= 0.107 (N.S)	 0 78.12(15.60) 77.11(14.95) 74.14(17.90) 75.60(14.34) 74.72(16.30)	 F = 0.821, p= 0.512 (N.S)

Note: * - $p<0.05$, N.S. – Not Significance

Specific Aims for 12 Months Follow-up Outcome 4

Multiple Regression Analysis for Avoidance items, Empathy items, and Overall Attitude on AIDS and Demographic variables among Nurses in after 12 months Post-test

Regression analysis revealed that nurses' educational qualification had a predictive relationship with empathy items with corresponding beta coefficient 0.152, t-value 2.420, and regression p value < 0.05. Nurses who completed a BSN had a stronger relationship with empathy items and a more positive attitude than nurses who had a GNM.

Chapter 6

Discussion

The discussion chapter focuses on the major findings, clinical implications, limitations of the study, and suggestions for future research.

CDC Knowledge and Attitudes Regarding AIDS Questionnaire

The results of the current study showed a significant increase in the cognitive, transmission, and overall knowledge of HIV/AIDS from pre-test to immediate post-test, but decreased at 12 months post-test. However, the 12 months post-test scores were still significantly higher than the pre-test scores (paired t-test at $p<0.001$(See Table 5-2, 5-3, and 5-5 for paired t-test). These findings were supported by other research. Nyamathi et al., and Ghorbani et al., reported that knowledge was increased in the cognitive, transmission, and overall knowledge after the educational intervention in the prevention of HIV/AIDS among the participants (Ghorbani et al., 2005; Nyamathi et al., 2008a; Nyamathi et al., 2008b; RekabEslamiZadeh, 2011).

Nurses in the current study scored greater than 60% in 7 out of 10 cognitive knowledge post-test items; however three cognitive areas need considerable improvement in which they scored less than 40%, such as: "a pregnant woman with the AIDS virus can give the AIDS virus to her baby" (yes), or "a person with AIDS can look or feel well" (yes), or "a person might be infected with the HIV virus and not manifest AIDS" (yes) (29.4%, 38.7%, and 13.6% respectively). Nyamathi et al. reported that few of their study participants responded correctly in two of the same content areas (Nyamathi et al., 2008b). This indicates that these areas should receive greater emphasis in future classes. Many of the nurses scored well, better than 70% in 10 out of 11 transmission knowledge post-test items, with one exception: A person will get AIDS or

the AIDS virus infection from “using public toilets” (no) was correctly responded to by only 7.2% of the nurses. This lack of basic knowledge is highlighted by these nurses in that they are unaware that HIV cannot be transmitted from using public toilets.

According to Rubak, Mortensen, Ringsted, and Malling, there was a 25% increase in knowledge after the train-the-trainer (TTT) program among the doctors, and it was retained after six months (Rubak et al., 2008). Nyamathi et al., found that knowledge had increased during the three and the six-month follow-up of the TTT, among Homeopathy, and Ayurveda Practitioners and Educators in India (Nyamathi et al., 2010). Williams et al., stated they trained around 67,000 Vietnam health care professionals over a period of six years in the prevention of HIV/AIDS using TTT. Significant improvements in the knowledge and attitude were identified among the participants (Williams et al., 2013).

In the current study of nurses, when the follow-up was conducted at 12 months, they had very limited exposure to HIV/AIDS patients as most of the patients were routed to the Government Hospital. This might explain the decreased scores in the 12 months post-test. According to Williams et al., nurses scored better in the knowledge questionnaire if they had cared for HIV/AIDS patients; the more they give care to such patients, the better the knowledge they gain (Williams et al., 2006). Pisal et al., explained, based on the post HIV/AIDS training interview with nurses and trainers, that more direct patient care experience was needed to keep nurses more knowledgeable and provide adequate resources to perform the job effectively (Pisal et al., 2007). This would indicate that nurses taking these classes should also be directly involved in care of HIV/AIDS patients and certainly this was a concern in the current study.

In the 12 months post-test (N=471), knowledge scores had significantly decreased at $p<0.001$ from the immediate post-test in all the items. This emphasizes the need for continuing

education and practical experience with HIV/AIDS. Pisal et al., evaluated an educational program periodically to monitor the progress that included knowledge retention among nurses at different intervals (Pisal et al., 2007). William et al., stated that pedagogical instructional approaches and experimental learning enhances transfer of knowledge, increases the possibility of education to public, and adds to the retention of knowledge and skills among nurses of HIV/AIDS (Williams et al., 2013). A study conducted among 277 Nigerian nurses revealed a low level of knowledge about HIV/AIDS and non-therapeutic attitudes towards People Living with HIV/AIDS (PLWHAs). The researchers concluded it was important to have continuing education on a regular basis and to improve the curriculum in the nursing programs (Oyeyemi, Oyeyemi, and Bello, 2006).

In the current study, 848 nurses were trained in the prevention of HIV/AIDS through TTT, and 471 nurses participated in the 12 months follow-up. One definitive advantage of the TTT model was the ability to impart knowledge to many individuals at a given time; primary trainers educated secondary trainers on what they learned; thus the knowledge increased among health care workers. Nurses gained highly significant knowledge in the cognitive, transmission, and overall knowledge of HIV/AIDS ($p<0.001$). Definitely the TTT model is a teaching method that is well-organized and can aid health care workers with sharing of information about HIV/AIDS, such as signs and symptoms, clinical manifestations, impact of the disease, counseling, and prevention of HIV. It is also crucial to assess different approaches of instruction, or a combination of techniques, to deliver the knowledge most powerfully. Opportunity for clinical application would almost certainly improve the learning. Nyamathi et al., suggested that researchers compare the cost of the TTT model with other models, especially for teaching large

numbers of nurses (Nyamathi et al., 2008b). The TTT model is a very efficient method and also creates experts from the primary trainers who can continue to serve as hospital experts.

An ANOVA and regression analysis were performed to determine if cognitive, transmission, and overall knowledge were associated or predicted by demographic, education, and work related variables. Among the demographic related variables, age of the nurses and marital status had significant associations with the outcomes. ANOVA indicated that nurses who were less than 25 years of age had an association in the cognitive knowledge of the pretest and transmission knowledge of the 12 months post-test. Nurses in this age group had completed their basic nursing program in the past 2-3 years, and with TTT they gained additional knowledge about HIV/AIDS; perhaps this could be the reason for their significant increase in the cognitive and transmission knowledge.

Nurses' marital status also had a significant association in the cognitive, and overall knowledge in the pre-test, and transmission knowledge in the 12 months post-test, with single nurses scoring higher. Similar trends continued in the regression; a predictive relationship was seen among single nurses in the cognitive and overall knowledge of the pre-test, and transmission and overall knowledge in the 12 months post-test. Jennings pointed out that work conflict, with family responsibilities is a predictor of nurses' well-being; he further explained that nurses become exhausted if their work interferes with family commitments (Jennings, 2008). A study conducted among 101 married female nurses revealed that the nurses felt their work interfered with their family life rather than the family interfered with their work performance (Gottlieb et al., 1996). Another study conducted among 196 medical technologists with 80 percent of the participants females. This study revealed that work exhaustion was directly related to work interference with family life (Blau et al., 2003). This study was

conducted among nurses in India where, as a cultural practice, married women carry many responsibilities besides their regular occupation. This also applies to nursing; therefore it is not surprising that single nurses had a stronger relationship with outcome in the current study.

Among the education and work-related variables, nursing degree completed, nurses' experience, nurses' work unit, and primary hospital affiliation had significant associations with the outcomes. ANOVA indicated that nurses with a Bachelor of Science in Nursing (BSN) had significant associations to the cognitive, transmission, and overall knowledge in the pre and immediate post-test, and the transmission, and overall knowledge of the 12 month post-test. This trend continued in the regression in the cognitive, transmission, and overall knowledge in the pre, immediate post, and 12 month post-test. Regression revealed that BSN prepared nurses had a predictive relationship with the outcome. Nurses' educational qualification was a strong predictor of outcomes in this study. The American Association of Colleges of Nursing (AACN) pointed out that educational level of nurses plays a significant role in the knowledge they gain, and the competencies they possess. Nurses with a BSN are better equipped with critical thinking and all the necessary skills to meet the challenges of the profession (AACN, 2012).

Nurses who worked in ICU, Medical Surgical Units, Pediatric, Oncology, Cardiology, Orthopedics, Labor and Delivery, Obstetrics, the Emergency Room, and the Blood Bank might have had prior experience in taking care of HIV/AIDS patients; hence they had a significant association in the cognitive knowledge of the pretest**,** the trend continued in the cognitive knowledge of the pretest in the regression. ANOVA indicated that nursing interns with no experience had an association in the cognitive knowledge, and nurses with greater than 20 years of experience had an association in the transmission and overall knowledge of the pretest. Nurses with 16-20 years of experience had an association in the immediate post-test, and nurses with

less than 5 years had an association in the transmission and overall knowledge of the12 months post-test. This trend only continued in the cognitive and overall knowledge of the immediate post-test in the regression. Probably nurses with 5 to 20 years of experience could relate the information they learned through the educational program, with their clinical experience, and this enhanced their learning. According to Mockiene et al., nurses with more years of experience give better care for PLWHAs than people with fewer years of experience (Mockiene et al., 2011). Nurses with 6-10 years of clinical experience consistently received a lower mean score when compared to nurses with other years of experience. They showed this pattern throughout the study. A study conducted among 101 married female nurses revealed that the nurses felt their work interfered with their family life rather than the family interfered with their work performance (Gottlieb et al., 1996). Another study conducted among 196 medical technologists with 80 percent of the participants females. This study revealed that work exhaustion was directly related to work interference with family life (Blau et al., 2003). Nurses with 6-10 years of experience are at the middle of their career; it has been 6-10 years since they graduated and they may not be focused on learning. Perhaps their priorities have changed and they may have lost their focus on work and learning and thus retain less knowledge, or the institution may not have provided the required continuing education for these nurses.

Primary hospital affiliation (PSG, and KMCH) had significant associations in the cognitive, transmission, and overall knowledge in the pre, immediate post, and 12 month post-test. This trend continued in the regression in the cognitive, transmission, and overall knowledge in the pre, immediate post, and 12 month post-test. Perhaps this is because these two hospitals are associated with colleges of nursing and therefore they have more BSN graduates working in their organizations.

AIDS Attitude Scale Discussion Section

The AIDS Attitude Scale (AAS) measures the attitude of nurses and other health care personnel toward persons living with HIV/AIDS (PLWHAs). In the current study, the mean score of overall empathy items was 4.64, and the mean score of the overall avoidance items was 3.13. The empathy mean score (4.64) minus the avoidance mean score (3.13) resulted in the general attitude score of 1.51 (See Table 5-13 &14). Froman and Owen explained a positive score indicates a supportive attitude and negative scores indicate a non- therapeutic attitude (Froman & Owen, 2001).

The current study participants' general attitude, empathy, and avoidance scores were compared to previous studies using AAS. The current study used a 6-point Likert scale. The mean score for avoidance was compared to other studies using a 6-point Likert scale. A survey conducted among 687 Nurse Practitioners (NP), Nurse Midwives (NM), and Physician Assistants (PAs) revealed, on a scale of 1-6, that a mean avoidance score was 2.07, suggestive of a low avoidance level, and a mean empathy score was 5.44, suggestive of a high empathy level. The general attitude score was 3.37 suggestive of a more positive attitude (Martin & Bedimo, 2000). A study by Froman and Owen had a mean avoidance score of 2.09, mean empathy score 5.27, and 3.18 general attitude score, also suggestive of a positive attitude (Frowman and Owen, 1997, 2001). A study by Frowman et al., had a mean avoidance score of 2.14, mean empathy score 5.08, and 2.94 general attitude score also suggestive of a positive attitude (Frowman et al., 1992), still higher than the attitude score in the present study. A study by Gillispie and Davis had a mean avoidance score of 2.37, a mean empathy score of 5.19, and a 2.82 general attitude score suggestive of a positive attitude (Gillispie & Davis, 1996). A randomized nationwide survey was conducted by mail to find out the attitude about HIV/AIDS among 246 PAs, using

AAS with a five point likert scale. This study revealed that the mean avoidance score was 1.79, empathy score was 4.55, and general attitude score was 2.78 (Talley et al., 2010). Based on the above findings, this current study showed a moderately positive attitude of nurses at 12 months post- test, but still lower than those in the five other studies.

Although the current study had a moderately positive attitude score, it also had a high mean score in the avoidance items which resulted in a lower mean score in the general attitude when compared with the other previously mentioned published studies. This study shows the importance of continuing TTT programs to further improve the attitude of nurses in India (See Table 5-13, 5-14). Slaten et al., observed a positive change among nurses in the care of people living with HIV/AIDS (PLWHAs) after seven training sessions in a five months period. Continuing education is a way to offer support in changing nurses' attitude (Slaten et al., 2000).

Martin, Bedimo and many other researchers addressed the two factors most commonly connected with a non-therapeutic attitude toward PLWHAs. Two factors were "fear of contagion and homophobia"; the word "homophobia" indicates a fear of giving care to homosexual individuals. Study respondents from the Martin and Bedimo study revealed less fear of contagion and a low level of homophobia. In the current study, questions 3, 4,5,11, and 13 from AAS were focused more on the fear of contagion and their mean scores ranged from 2.11 to 2.71 with a mean score of 2.43, while the mean scores for similar questions in the Martin, Bedimo study ranged from 1.35 to 2.87, and had a mean score of 1.89 (Martin & Bedimo, 2000). Participants from the current study revealed a lower level of fear of contagion when compared to the Martin and Bedimo study (See Table 5-13).

Questions 8, 10, 13, and 17 from AAS were focused more on the homophobia and their mean scores ranged from 2.71 to 4.44 with a mean score of 3.60, while the mean scores for the

similar questions in the Martin, Bedimo study ranged from 1.67 to 5.19, and had a mean score of 2.74. It was clearly evident that the participants from the current study had a higher level of homophobia when compared with the Martin, Bedimo study (Martin & Bedimo, 2000). Certainly this area needs to be addressed in future education and studies. In India, many psychiatrists still categorize homosexuality with mental illness, even though it was removed from the mental disorders list in the year 1973. A 26 year old gay man was treated to cure his sexual orientation despite not having any mental illness (Rao, 2012). Many Indian nurses may have negative feelings toward homosexuality due to cultural beliefs. It was identified that even in some gay communities there were cases of isolation based on their HIV positive versus negative status, and many gays mingled predominantly with their same group of individuals (Brady, 2011) (See Table 5-14).

Studies identified that higher levels of knowledge correlated with a positive attitude towards PLAWAs (Walusimbi & Okonsky, 2004). The current study participants attended the TTT program in the prevention of HIV/AIDS 12 months prior to filling out this questionnaire. This could be one of the reasons for their moderately positive attitude towards PLWAs. Nurses' educational qualification had a positive association in the ANOVA, and BSN prepared nurses had a predictive relationship in the regression with empathy items in the current study (See Table 5-15). According to Suominen et al., nurses' education played a major role in having a positive attitude (Suominen et al., 2010). According to Delobelle et al., nurses' attitudes were positively associated with educational qualification; they also found that nurses' attitudes were significantly associated with prior training (Delobelle et al., 2009). Studies have shown that nurses' years of experience and educational backgrounds determine the care they provide for HIV/AIDS patients

(Mockiene et al., 2011). These findings were positively supported in the current study findings regarding education.

Generalizability

The present study provided education to a total of 848 nurses and a pre and immediate post-test to nurses of three hospitals: PSG, KMCH, and GKNM. The current study trained 177 nurses out of 350 (51%) from PSG hospital, 150 nurses out of 450 (33%) from KMCH hospital, and 521 out of 562 (93%) from GKNM hospital. This study can be generalized to GKNM hospital for the pre and immediate post-test, but not for the 12-month post-test and not to PSG and KMCH hospitals because of the potential selection bias.

Limitations of the Study

This is a one group pretest and post-test design. A major limitation of this study is lack of a comparison group. Lack of random sampling and random assignment increases the bias in the study. This study used a convenience sample of nurses working in private hospitals. This further limits the ability to generalize the results. There was also a long gap from the immediate post-test to 12 months follow-up and historical changes could have happened during this time period. These may include nurses who might have attended other HIV/AIDS classes during this time, and nurses who might have changed their department or gained experience in other areas. Some other life events could have happened such as marriage or family deaths. No measures were taken to control these factors.

The Donabedian model examines the behavior of the subjects and the patient's health status as an outcome. In the present study nurses' knowledge and attitude were studied but not the nurses' behavior or patients' behavior or their health status. Innovation and communication

were the only constructs taken from the diffusion model in the current study. This is another limitation of this study.

Regression to the mean is a limitation of this study. If the nurses scored higher on the pretest, there is a tendency to score higher on the post-test as well. In the 12 month follow-up, only 471 participated in the study; they may be very different from the group that dropped out. This poses a limitation to the present study. External validity further limits the study: it cannot be generalized as there is no causal effect. This study was conducted among the nurses from three private hospitals who have limited exposure to HIV/AIDS patients, as most of the HIV/AIDS patients were admitted to the government hospitals. This was a factor the researcher did not realize until after the study was completed. This study did not look at the practical application of nurses' knowledge in the HIV/AIDS patients.

Drop out of cases is also a major concern; out of the total 848 participants only 471 of them participated at 12 months post-test. Based on the sub-group analyses, it seems that there were no differences in baseline data between those nurses who dropped out and those who remained in the study.

The study mainly focused on three private hospitals in Coimbatore, India that are different from each other in their day to day operations, and entirely different from government hospitals; this limits further generalization of the results. Nurses' responses to the CDC questionnaire had decreased from the immediate post-test to twelve months follow-up post-test, as they tended to forget the content over a period of twelve months. Attitude of nurses toward PLWHAs was not assessed at the pretest as the AIDS Attitude Scale was introduced at 12 months follow-up. This made it impossible to see the attitude change from pretest to 12 months

follow-up. Last, the nurses in this study had limited exposure to HIV/AIDS patients as many of the patients were sent to the government hospital for treatment.

Implications for Nursing Practice

The current study revealed several important findings. The structured teaching program using the TTT revealed highly significant results at $p<0.001$ from the pre-test to the post test for cognitive, transmission, and overall knowledge regarding HIV/AIDS among nurses. In the 12 months post-test knowledge scores had decreased from the first post-test in all the items, but it remained significantly higher than the pre-test as well. This stresses the importance of continuing education as nurses tend to forget the contents in a short period of time, as well as new knowledge on HIV/AIDS is added to the literature on a day-to-day basis. It is important to periodically evaluate their learning, and refresh their knowledge by continuing education, and refresher courses (Pisal et al., 2007). Therefore, healthcare organizations should offer periodic continuing education opportunities for nurses.

This research also showed that BSN-prepared nurses scored significantly higher in cognitive, transmission, overall knowledge of the CDC questionnaire, and empathy items in the AIDS Attitude Scale than nurses prepared with a GNM. This finding is rightly aligned with the current trend to have BSN as the basic nursing qualification in countries like the US, for the nurses to practice in the hospital. Though the current study was done in India, it is still important to fill the workforce with BSN trained nurses. Study findings will be reported to the hospital administration to achieve better quality of care for the patients.

The National Advisory Council on Nurse Education and Practice (NACNEP) recommended that by 2010, two thirds of the nursing work force should be occupied by BSN-

prepared nurses. The same trend is needed to increase the standard of nursing in India as it remains to be the country with the third largest population living with HIV/AIDS.

Nurses from the current study showed a moderately positive attitude towards PLWHAs at the 12 months post- test. It was evident that the nurses from the current study had a higher level of homophobia (fear of homosexuality) compared with Martin & Bedimo (2000) studies. Continuing education is definitely indicated.

Future Research

Future studies can be conducted to assess the knowledge using the CDC questionnaire at more frequent time intervals such as pretest, immediate post-test, three months follow-up, six months follow-up and 12 months follow-up, combined with the structured educational programs at periodic intervals. Studies can be conducted to assess the attitude using AIDS attitude scale at the beginning of the study and at set intervals after conducting the TTT. Future studies should focus on assessing homophobia among Indian nurses combined with educational programs to alleviate their fear towards this.

A qualitative research study could be conducted to evaluate nurses' practical application of HIV/AIDS knowledge and attitude in direct patient care. Future research might also be done to determine the effect of practical experience in caring for HIV/AIDS patients in increasing the test scores. Last, a study might be done to investigate the effectiveness of an educational program with direct involvement of PLWHAs in the educational process. Similar studies could be repeated, with necessary changes, at the government hospital, Coimbatore, India, and other government hospitals in India.

Recommendation to the Administrative Team of the Three Hospitals

Results of this study will be presented appropriately to the three hospitals. Dialogue will be initiated with the administrative and medical teams of the three hospitals in collaboration with Tamil Nadu State AIDS Control Society (TANSACS), Coimbatore Positive Network, a city based Non-Governmental Organization (NGO), South India Positive Network, and other voluntary organizations in the following topics such as: regular in-service opportunities for nurses, policy revision in handling of HIV/AIDS patients, care of HIV/AIDS patients, proper infrastructure, and needed resources. Perhaps this researcher may be able to influence the practices of these private hospitals in Coimbatore, and thus improve the care of HIV/AIDS patients.

Overall Summary

The purpose of this study was to examine the effectiveness of a TTT program in improving nurses' knowledge and attitude on HIV/AIDS among the study participants (nurses) employed in three private hospitals in Coimbatore, India. This study has two major objectives: 1) assess the retention, among nurses, of knowledge taught twelve months previously in the nurse-led-TTT program on HIV/AIDS; and 2) assess the attitude among nurses, taught twelve months previously in the nurse-led-TTT program on HIV/AIDS.

The current study assessed the cognitive, transmission, and overall knowledge after conducting TTT, using the CDC questionnaire at pretest, post, and 12 months post-test and the study revealed highly significant results at the post-test and 12 months post-test. However, the study also revealed that scores decreased significantly from the post-test to the 12 months post-test, though they were still significantly higher than the pretest scores. Attitude was assessed using the AIDS Attitude Scale at 12 months post-test and it revealed that nurses from the current

study showed a moderately positive attitude towards PLWHAs, but a moderate fear of homosexual patients compared with other studies.

Education of the nurses played a major role in the current study; BSN prepared nurses had a significantly stronger relationship with knowledge, attitude, and practical application. This once again stresses the importance of acquiring a higher level of education and continuing education at periodic intervals.

This research once again demonstrated that the TTT program educated a large number of nurses to significantly improve their knowledge of HIV/AIDS in a short time. This was achieved through TTT, and it also improved the gap in the knowledge that had not been covered in the nursing curriculum. Thus, it is important to prepare the nursing workforce in India, to meet the challenges they will face in giving care to people with HIV/AIDS. Conducting TTT in India, combined with continuing education at frequent intervals, may be a good model, not only to increase the number of nurses trained but also to improve their knowledge in the prevention of HIV/AIDS. Even though this study educated a group of nurses who work in private hospitals and may not have been involved with caring for many HIV/AIDS patients, they will certainly be exposed to these medical issues in the future, and should be providing prevention education to patients and families. It also served to educate faculty who will be continuing to teach future nurses, so the educational intervention was certainly of value to India.

Appendix A: IRB Approval from University of California Los Angeles

University of California Los Angeles
11000 Kinross Avenue, Suite 211
Los Angeles, CA 90095-1694

http://ohrpp.research.ucla.edu
GC-IRB: (310) 825-7122
M-IRB: (310) 825-5344

APPROVAL NOTICE

DATE:	7/12/2013
TO:	CHRISTIANA BASKARAN SCHOOL OF NURSING
FROM:	ALISON MOORE, MPH, MD Chair, SGIRB
RE:	IRB#11-002288-CR-00002 2013 Review for IRB#11-002288 "Practical Strategies for Educating Nurses in India to Improve Care of Patients with HIV and AIDS using the Train-the-Trainer program."

The UCLA Institutional Review Board (UCLA IRB) has approved the submission listed below. The UCLA IRB's Federalwide Assurance (FWA) with Department of Health and Human Services is FWA00004642 (IRB00004474).

Submission and Review Information

Type of Submission	Continuing Review
Type of Review	Expedited Review
Approval Date for this Submission	7/11/2013
Expiration Date of the Study	7/10/2016
Funding Source(s)	1) SIGMA THETA TAU INTERNATIONAL INC. *Grant Title*: "Innovative Strategies for Educating Nurses in India to Improve Care of Patients with HIV and AIDS" *Grant Number*: Not sure, Funding will be released by August, 1, 2011, after getting the IRB approval.

Specific Conditions for Approval

-- **Data Analysis Only** - the remaining research activities are limited to data analysis.

Regulatory Determinations

-- The UCLA IRB determined that the research meets the requirements for expedited review per 45 CFR 46.110 category 7.

-- The IRB has determined that this study meets the criteria for a 3 year extended approval. (For reference, please see the OHRPP guidance document “Extended Approval for Minimal Risk Research Not Subject to Federal Oversight” at http://ora.research.ucla.edu/OHRPP/Documents/Policy/4/Extended_Approval.pdf)

Important Note: Approval by the Institutional Review Board does not, in and of itself, constitute approval for the implementation of this research. Other UCLA clearances and approvals or other external agency or collaborating institutional approvals may be required before study activities are initiated. Research undertaken in conjunction with outside entities, such as drug or device companies, are typically contractual in nature and require an agreement between the University and the entity.

General Conditions of Approval
As indicated in the PI Assurances as part of the IRB requirements for approval, the PI has ultimate responsibility for the conduct of the study, the ethical performance of the project, the protection of the rights and welfare of human subjects, and strict adherence to any stipulations imposed by the IRB.

The PI and study team will comply with all UCLA policies and procedures, as well as with all applicable Federal, State, and local laws regarding the protection of human subjects in research, including, but not limited to, the following:

- Ensuring that the personnel performing the project are qualified, appropriately trained, and will adhere to the provisions of the approved protocol,
- Implementing no changes in the approved protocol or consent process or documents without prior IRB approval (except in an emergency, if necessary to safeguard the well-being of human subjects and then notifying the IRB as soon as possible afterwards),
- Obtaining the legally effective informed consent from human subjects of their legally responsible representative, and using only the currently approved consent process and stamped consent documents, as appropriate, with human subjects,
- Reporting serious or unexpected adverse events as well as protocol violations or other incidents related to the protocol to the IRB according to the OHRPP reporting requirements.
- Assuring that adequate resources to protect research participants (i.e., personnel, funding, time, equipment and space) are in place before implementing the research project, and that the research will stop if adequate resources become unavailable.
- Arranging for a co-investigator to assume direct responsibility of the study if the PI will be unavailable to direct this research personally, for example, when on sabbatical leave or vacation or other absences. Either this person is named as co-investigator in this application, or advising IRB via webIRB in advance of such arrangements.

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APPROVAL NOTICE
New Study

DATE:	7/20/2011
TO:	CHRISTIANA BASKARAN SCHOOL OF NURSING
FROM:	ALISON MOORE Chair, SGIRB
RE:	IRB#11-002288 "Practical Strategies for Educating Nurses in India to Improve Care of Patients with HIV and AIDS using the Train-the-Trainer program."

The UCLA Institutional Review Board (UCLA IRB) has approved the above-referenced study. The UCLA IRB's Federalwide Assurance (FWA) with Department of Health and Human Services is FWA00004642 (IRB00004474).

Submission and Review Information

Type of Review	Expedited Review
Approval Date	7/19/2011
Expiration Date of the Study	7/18/2012
Funding Source(s)	1) SIGMA THETA TAU INTERNATIONAL INC. *Grant Title*: "Innovative Strategies for Educating Nurses in India to Improve Care of Patients with HIV and AIDS" *Grant Number*: Not sure, Funding will be released by August, 1, 2011, after getting the IRB approval.

Regulatory Determinations

-- The UCLA IRB determined that the research meets the requirements for expedited review per 45 CFR 46.110 category 7.

-- The UCLA IRB waived the requirement for signed informed consent for the screening procedures under 45 CFR 46.117(c)(2).

Documents Reviewed included, but were not limited to:

Document Name	Document Version #
Eligibility Screening Script for KMCH Hospital Nurses.pdf	0.01

Eligibility Screening Script for PSG Hospital Nurses.pdf	0.01
Research Announcement Flyer.pdf	0.01
Eligibility Screening Script for GKNM Hospital Nurses.pdf	0.01
Research Study Information Sheet-KMCH.pdf	0.01
Research Study Information Sheet-GKNM.pdf	0.01
Research Study Information Sheet-PSG.pdf	0.01

Important Note: Approval by the Institutional Review Board does not, in and of itself, constitute approval for the implementation of this research. Other UCLA clearances and approvals or other external agency or collaborating institutional approvals may be required before study activities are initiated. Research undertaken in conjunction with outside entities, such as drug or device companies, are typically contractual in nature and require an agreement between the University and the entity.

General Conditions of Approval
As indicated in the PI Assurances as part of the IRB requirements for approval, the PI has ultimate responsibility for the conduct of the study, the ethical performance of the project, the protection of the rights and welfare of human subjects, and strict adherence to any stipulations imposed by the IRB.

The PI and study team will comply with all UCLA policies and procedures, as well as with all applicable Federal, State, and local laws regarding the protection of human subjects in research, including, but not limited to, the following:

- Ensuring that the personnel performing the project are qualified, appropriately trained, and will adhere to the provisions of the approved protocol,
- Implementing no changes in the approved protocol or consent process or documents without prior IRB approval (except in an emergency, if necessary to safeguard the well-being of human subjects and then notifying the IRB as soon as possible afterwards),
- Obtaining the legally effective informed consent from human subjects of their legally responsible representative, and using only the currently approved consent process and stamped consent documents, as appropriate, with human subjects,
- Reporting serious or unexpected adverse events as well as protocol violations or other incidents related to the protocol to the IRB according to the OHRPP reporting requirements.
- Assuring that adequate resources to protect research participants (i.e., personnel, funding, time, equipment and space) are in place before implementing the research project, and that the research will stop if adequate resources become unavailable.
- Arranging for a co-investigator to assume direct responsibility of the study if the PI will be unavailable to direct this research personally, for example, when on sabbatical leave or vacation or other absences. Either this person is named as co-investigator in this application, or advising IRB via webIRB in advance of such arrangements.

Appendix B: IRB Approved Research Announcement Flyer

INVITATION

NURSES WHO PARTICIPATED IN HIV/AIDS UCLA/INDIA TRAIN-THE-TRAINER RESEARCH (IN 2010)

PLEASE PARTICIPATE IN FOLLOW-UP RESEARCH

CONTACT CHRISTIANA BASKARAN UCLA RESEARCHER, IN BREAK ROOM OR AT 9894659035 (CELL)

A SOUVENIR OF THIS INTERNATIONAL RESEARCH WILL BE GIVEN TO ALL PARTICIPANTS

Protocol ID:IRB #11-002288 UCLA IRB Approved Approval Date: 7/19/2011 Through: 7/18/2012 Committee: South General IRB

Appendix C: Eligibility Screening Script

University of California, Los Angeles
PSG College of Nursing and Hospital

Eligibility Screening Script for Research
Nine-Twelve Months Follow up HIV/AIDS Train-the-Trainer Program in Coimbatore, India

Thank you for participating in the HIV/AIDS Train-the-Trainer (TTT) program.

I need to ask you a few questions in order to determine whether you may be eligible for this research. I will ask you questions about whether you participated in the TTT program, and your interest in participating in the follow up TTT program. Before I initiate I will explain to you in short about the follow up research on AIDS TTT.

The purpose of the study is to achieve two major objectives: 1) assess the retention, among nurses, of knowledge and attitude taught nine-twelve months previously in the nurse-led-train-the trainer program on HIV/AIDS; and 2) assess the application, among nurses, of knowledge and attitude taught nine-twelve months previously in the nurse-led-train-the trainer program on HIV/AIDS.

Would you like to continue with the screening? The screening will take a several minutes. You do not have to answer any questions you do not wish to answer and you may stop at any time. Your participation in the screening is voluntary. A decision of whether or not to participate in the screening will not affect your relationship with PSG College of Nursing or Hospital or UCLA. You will not directly benefit from the screening.

Your answers will be confidential and will be kept in a locked file cabinet in the research office. No one will know the answers except for the research team. If you are not eligible for the study, the screening will not be continued.

Would you like to continue with the screening?

[*If yes, continue with the screening*].

[*If no, thank the person and hang-up*].

1. Are you a nurse or faculty with the PSG College of nursing or medical center? [*If no, thank the person and hang up*].

2. Would you be willing to complete a nine-twelve months follow up post-test, attitude questionnaire, and additional questions to be completed at nine-twelve months follow up? [*If no, thank person and hang up*]

[*If yes, include the following at the end of the screening*]:

Thank you for answering the screening questions. *[Indicate whether the person is eligible, or is not eligible and explain why.]*

Do you have any questions about the screening or the research? I am going to give you my telephone numbers to call if you have any questions later. Do you have a pen? If you have questions about the research screening, you may call Ms. Christiana Baskaran at +91 9894659035 or +91 422- 2440790 during the India trip, and the USA contact # (310) 902-6627.

If you have questions about your rights as a research subject, please call the Indian Ethical Committee Tamilnadu, India +91 44 283 69500 or the UCLA Office of the Human Research Protection Program at (310) 825.7122.

Thank you again for your willingness to participate in this research.

I would like to schedule an appointment to answer any other questions about the research study with you, and to go over the informed consent.

Appointment Date: _____

Appendix D: Eligibility Screening Script

University of California, Los Angeles
KMCH College of Nursing and Hospital

Eligibility Screening Script for Research
Nine-Twelve Months Follow up HIV/AIDS Train-the-Trainer Program in Coimbatore, India

Thank you for participating in the HIV/AIDS Train-the-Trainer (TTT) program.

I need to ask you a few questions in order to determine whether you may be eligible for this research. I will ask you questions about whether you participated in the TTT program, and your interest in participating in the follow up TTT program. Before I initiate I will explain to you in short about the follow up research on AIDS TTT.

The purpose of the study is to achieve two major objectives: 1) assess the retention, among nurses, of knowledge and attitude taught nine-twelve months previously in the nurse-led-train-the trainer program on HIV/AIDS; and 2) assess the application, among nurses, of knowledge and attitude taught nine-twelve months previously in the nurse-led-train-the trainer program on HIV/AIDS.

Would you like to continue with the screening? The screening will take a several minutes. You do not have to answer any questions you do not wish to answer and you may stop at any time. Your participation in the screening is voluntary. A decision of whether or not to participate in the screening will not affect your relationship with KMCH College of Nursing or Hospital or UCLA. You will not directly benefit from the screening.

Your answers will be confidential and will be kept in a locked file cabinet in the research office. No one will know the answers except for the research team. If you are not eligible for the study, the screening will not be continued.

Would you like to continue with the screening?

[*If yes, continue with the screening*].

[*If no, thank the person and hang-up*].

1. Are you a nurse or faculty with the KMCH College of nursing or medical center? [*If no, thank the person and hang up*].

2. Would you be willing to complete a nine-twelve months follow up post-test, AIDS Attitude questionnaire and additional questions to be completed at nine-twelve months follow up? [*If no, thank person and hang up*]

[*If yes, include the following at the end of the screening*]:

Thank you for answering the screening questions. *[Indicate whether the person is eligible, or is not eligible and explain why.]*

Do you have any questions about the screening or the research? I am going to give you my telephone numbers to call if you have any questions later. Do you have a pen? If you have questions about the research screening, you may call Ms. Christiana Baskaran at +91 9894659035 or +91 422- 2440790 during the India trip, and the USA contact # (310) 902-6627.

If you have questions about your rights as a research subject, please call the Indian Ethical Committee Tamilnadu, India +91 44 283 69500 or the UCLA Office of the Human Research Protection Program at (310) 825.7122.

Thank you again for your willingness to participate in this research.

I would like to schedule an appointment to answer any other questions about the research study with you, and to go over the informed consent.

Appointment Date: _____

Appendix E: Eligibility Screening Script

University of California, Los Angeles
GKNM School of Nursing and Hospital

Eligibility Screening Script for Research
Nine-Twelve Months Follow up HIV/AIDS Train-the-Trainer Program in Coimbatore, India

Thank you for participating in the HIV/AIDS Train-the-Trainer (TTT) program.

I need to ask you a few questions in order to determine whether you may be eligible for this research. I will ask you questions about whether you participated in the TTT program, and your interest in participating in the follow up TTT program. Before I initiate I will explain to you in short about the follow up research on AIDS TTT.

The purpose of the study is to achieve two major objectives: 1) assess the retention, among nurses, of knowledge and attitude taught nine-twelve months previously in the nurse-led-train-the trainer program on HIV/AIDS; and 2) assess the application, among nurses, of knowledge and attitude taught nine-twelve months previously in the nurse-led-train-the trainer program on HIV/AIDS.

Would you like to continue with the screening? The screening will take a several minutes. You do not have to answer any questions you do not wish to answer and you may stop at any time. Your participation in the screening is voluntary. A decision of whether or not to participate in the screening will not affect your relationship with GKNM School of Nursing or Hospital or UCLA. You will not directly benefit from the screening.

Your answers will be confidential and will be kept in a locked file cabinet in the research office. No one will know the answers except for the research team. If you are not eligible for the study, the screening will not be continued.

Would you like to continue with the screening?

[*If yes, continue with the screening*].

[*If no, thank the person and hang-up*].

1. Are you a nurse or faculty with the GKNM School of nursing or hospital? [*If no, thank the person and hang up*].

2. Would you be willing to complete a nine-twelve months follow up post-test, AIDS Attitude questionnaire, and additional questions to be completed at nine-twelve months follow up? [*If no, thank person and hang up*]

[*If yes, include the following at the end of the screening*]:

Thank you for answering the screening questions. *[Indicate whether the person is eligible, or is not eligible and explain why.]*

Do you have any questions about the screening or the research? I am going to give you my telephone numbers to call if you have any questions later. Do you have a pen? If you have questions about the research screening, you may call Ms. Christiana Baskaran at +91 9894659035 or +91 422- 2440790 during the India trip, and the USA contact # (310) 902-6627.

If you have questions about your rights as a research subject, please call the Indian Ethical Committee Tamilnadu, India +91 44 283 69500 or the UCLA Office of the Human Research Protection Program at (310) 825.7122.

Thank you again for your willingness to participate in this research.

I would like to schedule an appointment to answer any other questions about the research study with you, and to go over the informed consent.

Appointment Date: _____

Appendix F: Research Study Information Sheet

University of California, Los Angeles (UCLA)
PSG Hospital and College of Nursing

Research Study Information Sheet

Nine-Twelve Months Follow up HIV/AIDS Train-the-Trainer Program in Coimbatore, India

You are invited to participate in the nine – twelve months follow-up research study conducted by Christiana Baskaran from UCLA School of Nursing. You are being asked because you were involved in the HIV/AIDS, UCLA/India research in 2010. Your participation in this study is entirely voluntary. You should ask questions about anything you do not understand before deciding whether or not to participate.

- **PURPOSE OF THE STUDY**

The purpose of this study is to:
1) assess the retention, among nurses, of knowledge and attitude taught nine-twelve months previously in the nurse-led-TTT program on HIV/AIDS; and
2) assess the application, among nurses, of knowledge and attitude taught nine-twelve months previously in the nurse-led-TTT program on HIV/AIDS.

- **PROCEDURES INVOLVED IN PARTICIPATING IN THE STUDY**

If you volunteer to participate in this study, you will be asked to do the following:
Fill out CDC questionnaire post-test, AIDS Attitude Questionnaire, and the additional questions /statements to be asked during the nine-twelve months follow up.

- **POTENTIAL RISKS AND DISCOMFORTS**

You may feel discomfort reporting negative attitudes related to HIV+ patients or not wanting to care for HIV+ patients and you may also worry that your co-workers/employer may find out about your negative attitudes or lack of knowledge.

- **MEASURES TAKEN TO MINIMIZE RISKS**

1. This UCLA researcher will present the questionnaire to you in a quiet area in a private room where others don't hear or interfere when you fill out the questionnaire.

2. The data will be kept confidentially in a locked cabinet.

3. You do not have to answer any questions you do not wish to answer or if you are not comfortable answering any items.

- **ANTICIPATED BENEFITS TO SUBJECTS**

It is hoped that the educators and practitioners who participate in this study will have more retention of knowledge on HIV/AIDS, have a positive attitude towards HIV/AIDS and apply the knowledge in the care of HIV/AIDS patients

- **ANTICIPATED BENEFITS TO SOCIETY**

The long term goal of this study is to develop a culturally sensitive HIV/AIDS education and training program which could be integrated into the nursing education system in India and integrated upon by the nurses and faculty into their delivery of care to the general and at risk populations.

- **ALTERNATIVES TO PARTICIPATION**

The alternative is not to participate.

- **PRIVACY AND CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can identify you will remain confidential. It will be disclosed only with your permission or as required by law. There won't be any special code assigned to you, to identify your data. Your pre, immediate post-test, and nine-twelve months follow-up post-test will be matched by using your date of birth and your employee ID. This information will be used only for matching the data, and will have no impact on your employment. Your answers will be confidential and will be kept in a locked file cabinet in the research office at UCLA. No one will know the answers except for the research team. The research team includes this UCLA doctoral researcher, Christiana Baskaran and her faculty sponsor, Dr. Donna McNeese Smith.

When the results are published or discussed in conferences, no information will be included that would reveal your identity.

- **PARTICIPATION AND WITHDRAWAL**

Your participation in this research is VOLUNTARY. If you decide not to participate, that will not affect your relationship with UCLA or the PSG Hospital/College of Nursing. If you decide not to participate, you are free to withdraw your consent and discontinue participation at any time without prejudice.

- **IDENTIFICATION OF INVESTIGATORS**

In the event of a research related injury or if you experience an adverse reaction, please immediately contact the investigator listed below. If you have any questions about the research, please feel free to contact Ms. Christiana Baskaran at +91 9894659035 or +91 422- 2440790 during the India trip, and the USA contact # 1 310.902.6627, and

Dr. Donna McNeese Smith, Faculty sponsor, at (951) 805-3705.

- **RIGHTS OF RESEARCH SUBJECTS**

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact the Indian Ethical Committee Tamil Nadu India +91 44 283 69500 or the Office of the Human Research Protection Program, UCLA, 11000 Kinross Avenue, Suite 102, Box 951694, Los Angeles, CA 90095-1694, (310) 825-7122.

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Appendix G: Research Study Information Sheet

University of California, Los Angeles (UCLA)
KMCH Hospital and College of Nursing

Research Study Information Sheet

Nine-Twelve Months Follow up HIV/AIDS Train-the-Trainer Program in Coimbatore, India

You are invited to participate in the nine – twelve months follow-up research study conducted by Christiana Baskaran from UCLA School of Nursing. You are being asked because you were involved in the HIV/AIDS, UCLA/India research in 2010. Your participation in this study is entirely voluntary. You should ask questions about anything you do not understand before deciding whether or not to participate.

- **PURPOSE OF THE STUDY**

The purpose of this study is to:
1) assess the retention, among nurses, of knowledge and attitude taught nine-twelve months previously in the nurse-led-TTT program on HIV/AIDS; and
2) assess the application, among nurses, of knowledge and attitude taught nine-twelve months previously in the nurse-led-TTT program on HIV/AIDS.

- **PROCEDURES INVOLVED IN PARTICIPATING IN THE STUDY**

If you volunteer to participate in this study, you will be asked to do the following:
fill out CDC questionnaire post-test, AIDS Attitude Questionnaire, and the additional questions /statements to be asked during the nine-twelve months follow up.

- **POTENTIAL RISKS AND DISCOMFORTS**

You may feel discomfort reporting negative attitudes related to HIV+ patients or not wanting to care for HIV+ patients and you may also worry that your co-workers/employer may find out about your negative attitudes or lack of knowledge.

- **MEASURES TAKEN TO MINIMIZE RISKS**

1. This UCLA researcher will present the questionnaire to you in a quiet area in a private room where others don't hear or interfere when you fill out the questionnaire.

2. The data will be kept confidentially in a locked cabinet.

3. You do not have to answer any questions you do not wish to answer or if you are not comfortable answering any items.

- **ANTICIPATED BENEFITS TO SUBJECTS**

It is hoped that the educators and practitioners who participate in this study will have more retention of knowledge on HIV/AIDS, have a positive attitude towards HIV/AIDS and apply the knowledge in the care of HIV/AIDS patients

- **ANTICIPATED BENEFITS TO SOCIETY**

The long term goal of this study is to develop a culturally sensitive HIV/AIDS education and training program which could be integrated into the nursing education system in India and integrated upon by the nurses and faculty into their delivery of care to the general and at risk populations.

Protocol ID:IRB #11-002288 UCLA IRB Approved Approval Date: 7/19/2011 Through: 7/18/2012 Committee: South General IRB

- **ALTERNATIVES TO PARTICIPATION**

The alternative is not to participate.

- **PRIVACY AND CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can identify you will remain confidential. It will be disclosed only with your permission or as required by law. There won't be any special code assigned to you, to identify your data. Your pre, immediate post-test, and nine-twelve months follow-up post-test will be matched by using your date of birth and your employee ID. This information will be used only for matching the data, and will have no impact on your employment. Your answers will be confidential and will be kept in a locked file cabinet in the research office at UCLA. No one will know the answers except for the research team. The research team includes this UCLA doctoral researcher, Christiana Baskaran and her faculty sponsor, Dr. Donna McNeese Smith.

When the results are published or discussed in conferences, no information will be included that would reveal your identity.

- **PARTICIPATION AND WITHDRAWAL**

Your participation in this research is VOLUNTARY. If you decide not to participate, that will not affect your relationship with UCLA or the KMCH Hospital/College of Nursing. If you decide not to participate, you are free to withdraw your consent and discontinue participation at any time without prejudice.

- **IDENTIFICATION OF INVESTIGATORS**

In the event of a research related injury or if you experience an adverse reaction, please immediately contact the investigator listed below. If you have any questions about the research, please feel free to contact Ms. Christiana Baskaran at +91 9894659035 or +91 422- 2440790 during the India trip, and the USA contact # 1 310.902.6627, and

Dr. Donna McNeese Smith, Faculty sponsor, at (951) 805-3705.

- **RIGHTS OF RESEARCH SUBJECTS**

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Appendix H: Research Study Information Sheet

University of California, Los Angeles (UCLA)
GKNM Hospital and School of Nursing

Research Study Information Sheet

Nine-Twelve Months Follow up HIV/AIDS Train-the-Trainer Program in Coimbatore, India

You are invited to participate in the nine – twelve months follow-up research study conducted by Christiana Baskaran from UCLA School of Nursing. You are being asked because you were involved in the HIV/AIDS, UCLA/India research in 2010. Your participation in this study is entirely voluntary. You should ask questions about anything you do not understand before deciding whether or not to participate.

- **PURPOSE OF THE STUDY**

The purpose of this study is to:
1) assess the retention, among nurses, of knowledge and attitude taught nine-twelve months previously in the nurse-led-TTT program on HIV/AIDS; and
2) assess the application, among nurses, of knowledge and attitude taught nine-twelve months previously in the nurse-led-TTT program on HIV/AIDS.

- **PROCEDURES INVOLVED IN PARTICIPATING IN THE STUDY**

If you volunteer to participate in this study, you will be asked to do the following:
fill out CDC questionnaire post-test, AIDS Attitude Questionnaire, and the additional questions /statements to be asked during the nine-twelve months follow up.

- **POTENTIAL RISKS AND DISCOMFORTS**

You may feel discomfort reporting negative attitudes related to HIV+ patients or not wanting to care for HIV+ patients and you may also worry that your co-workers/employer may find out about your negative attitudes or lack of knowledge.

- **MEASURES TAKEN TO MINIMIZE RISKS**

1. This UCLA researcher will present the questionnaire to you in a quiet area in a private room where others don't hear or interfere when you fill out the questionnaire.

2. The data will be kept confidentially in a locked cabinet.

3. You do not have to answer any questions you do not wish to answer or if you are not comfortable answering any items.

- **ANTICIPATED BENEFITS TO SUBJECTS**

It is hoped that the educators and practitioners who participate in this study will have more retention of knowledge on HIV/AIDS, have a positive attitude towards HIV/AIDS and apply the knowledge in the care of HIV/AIDS patients

- **ANTICIPATED BENEFITS TO SOCIETY**

The long term goal of this study is to develop a culturally sensitive HIV/AIDS education and training program which could be integrated into the nursing education system in India and integrated upon by the nurses and faculty into their delivery of care to the general and at risk populations.

Protocol ID:IRB #11-002288 UCLA IRB Approved Approval Date: 7/19/2011 Through: 7/18/2012 Committee: South General IRB

- **ALTERNATIVES TO PARTICIPATION**

The alternative is not to participate.

- **PRIVACY AND CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can identify you will remain confidential. It will be disclosed only with your permission or as required by law. There won't be any special code assigned to you, to identify your data. Your pre, immediate post-test, and nine-twelve months follow-up post-test will be matched by using your date of birth and your employee ID. This information will be used only for matching the data, and will have no impact on your employment. Your answers will be confidential and will be kept in a locked file cabinet in the research office at UCLA. No one will know the answers except for the research team. The research team includes this UCLA doctoral researcher, Christiana Baskaran and her faculty sponsor, Dr. Donna McNeese Smith.

When the results are published or discussed in conferences, no information will be included that would reveal your identity.

- **PARTICIPATION AND WITHDRAWAL**

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- **IDENTIFICATION OF INVESTIGATORS**

In the event of a research related injury or if you experience an adverse reaction, please immediately contact the investigator listed below. If you have any questions about the research, please feel free to contact Ms. Christiana Baskaran at +91 9894659035 or +91 422- 2440790 during the India trip, and the USA contact # 1 310.902.6627, and

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- **RIGHTS OF RESEARCH SUBJECTS**

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Protocol ID:IRB #11-002288 UCLA IRB Approved Approval Date: 7/19/2011 Through: 7/18/2012 Committee: South General IRB

Appendix I: CDC Questionnaire
Nine-Twelve Months Follow-up Post Test

Nine-Twelve Months Follow-up of AIDS Train-the-Trainer Program in Coimbatore
SURVEY

Employee ID NO:

DOB: ___ ___ ___
MM DD YY

CDC KNOWLEDGE AND ATTITUDES REGARDING AIDS

1. READ: After I read each statement **[SHOW CARD # 1 TO RESPONDENT]**, tell me whether you think the statement is definitely true, probably true, probably false, or definitely false, or you don't know if it is true or false.

	(Circle One Number On Each Line)				
	Definitely True	Probably True	Probably False	Definitely False	Don't Know
a. AIDS can reduce the body's natural protection.....	1	2	3	4	5
b. AIDS can damage the brain.....	1	2	3	4	5
c. AIDS is an infectious disease caused by a virus.....	1	2	3	4	5
d. Teenagers cannot get AIDS.....	1	2	3	4	5
e. A person can be infected with the AIDS virus and not have the disease AIDS.....	1	2	3	4	5
f. Looking at a person is enough to tell if he or she has the AIDS virus.....	1	2	3	4	5
g. A person who has the AIDS virus can look and feel well.....	1	2	3	4	5
h. A pregnant woman who has the AIDS virus can give the AIDS virus to her baby.....	1	2	3	4	5
i. There is a vaccine available to the public that protects a person from getting the AIDS virus.....	1	2	3	4	5
j. There is no cure for AIDS at present.....	1	2	3	4	5

CDC KNOWLEDGE AND ATTITUDES REGARDING AIDS (Continued)

Now please tell me whether you think that each of the following statements is **[SHOW CARD # 1 TO RESPONDENT]** definitely true, probably true, probably false, definitely false, or you don't know if it is true or false.

A person will get AIDS or the AIDS virus infection from:

	(Circle One Response on Each Line)				
	Definitely True	Probably True	Probably False	Definitely False	Don't Know
k. Living near a home or hospital for AIDS patients.....	1	2	3	4	5
l. Working near someone with the AIDS virus.....	1	2	3	4	5
m. Eating in a restaurant where the cook has the AIDS virus....	1	2	3	4	5
n. Shaking hands, touching, or kissing on the cheek someone who has the AIDS virus.....	1	2	3	4	5
o. Sharing plates, forks, or glasses with someone who has the AIDS virus.....	1	2	3	4	5
p. Using public toilets.....	1	2	3	4	5
q. Sharing needles for drug use with someone who has the AIDS virus.....	1	2	3	4	5
r. Being near someone who coughs or sneezes and has the AIDS virus.....	1	2	3	4	5
s. Attending school with a child who has the AIDS virus.....	1	2	3	4	5
t. Mosquitoes or other insects.....	1	2	3	4	5
u. Having sex with a person who has the AIDS virus.....	1	2	3	4	5

SOCIO-DEMOGRAPHIC INFORMATION

1. When were you born? ____ ____ - ____ ____ - ____ ____
   M M D D Y Y

2. How old are you?....._____

3. What is your gender?

   (Circle One)
   Male 1
   Female.....2

4. As a participant, which group do you represent (Primary affiliation):

   Employed Nurse …….1 (Go to 5a)
   Faculty .....2 (Go to 5b)
   Nursing Intern……...3

   4a. As an employed nurse, in which unit are you currently enrolled:

   Administration 1
   ICU……. 2
   Gerontology 3
   Medical-Surgical..... 4
   Surgical…… 5
   Oncology..... 6
   Pediatrics..... 7
   Other ……. 8

   (Please specify) _____

   4b. As faculty, in which program do you teach?

   BS..... 1

   MSN
   Acute Care .....… 2
   Administration .....… 3
   Admin/Occup Env Hth . 4
   Gerontology .....… 5
   Midwifery .....… 6
   Occupational & Envir Hlth…7
   Oncology.....…… 8
   Pediatrics.....…… 9
   Family 10

Ph.D 11

5. What degrees have you completed?

	Yes	No
AA.....	1	2
BS/BSN.....	1	2
MS/MSN.....	1	2
DNSc.....	1	2
Ph.D	1	2
Other	1	2

Please specify: _____

6. How many years of clinical experience have you had?

_____(year/s)

7. What is your religion?

(Circle One)

Hindu 1
Christian..... 2
Muslim..... 3
None..... 4
Other 5
Specify_____

8. Are you currently:

Single 1
Married..... 2
Separated/Divorced/Widowed 3
Partnered……4

9. Are you currently:

(Circle One)

Working full-time 1
Working part-time..... 2
Something else..... 3
SPECIFY: _____

Appendix J: AIDS Attitude Scale

Nine-Twelve month Follow-Up of AIDS Train-the-Trainer Program

INSTRUCTIONS: For each item circle the response choice that best corresponds to how strongly you agree or disagree with the statement. The categories of response are STRONGLY DISAGREE (**SD**), MODERATELY DISAGREE (**MD**), DISAGREE (**D**), AGREE (**A**), MODERATELY AGREE (**MA**), and STRONGLY AGREE (**SA**).

	Strongly Disagree					**Strongly Agree**
1. Most people who have AIDS have only themselves to blame.	SD	MD	D	A	MA	SA
2. Most people who have AIDS deserve what they get.	SD	MD	D	A	MA	SA
3. Patients who are HIV positive should not be put in rooms with other patients.	SD	MD	D	A	MA	SA
4. If I were assigned to a patient with AIDS, I would worry about putting my family and friends at risk of contracting the disease.	SD	MD	D	A	MA	SA
5. Young children should be removed from the home if one of the parents is HIV positive.	SD	MD	D	A	MA	SA
6. I think people who are IV drug users deserve to get AIDS.	SD	MD	D	A	MA	SA
7. I think women who give birth to babies who are HIV positive should be prosecuted for child abuse.	SD	MD	D	A	MA	SA
8. Homosexuality should be illegal.	SD	MD	D	A	MA	SA
9. I feel more sympathetic toward people who get AIDS from blood transfusions than those who get it from IV drug abuse.	SD	MD	D	A	MA	SA
10. If I found out that a friend of mine was a homosexual, I would not maintain the friendship.	SD	MD	D	A	MA	SA
11. I'm worried about getting AIDS from social contact with someone.	SD	MD	D	A	MA	SA
12. Children or people who get AIDS from blood transfusions are more deserving of treatment than those who get it from IV drug abuse.	SD	MD	D	A	MA	SA
13. I would be worried about my child getting AIDS if I knew that one of his teachers was a homosexual.	SD	MD	D	A	MA	SA
14. I have little sympathy for people who get AIDS from sexual promiscuity.	SD	MD	D	A	MA	SA
15. I think patients with AIDS have the right to the same quality of care as any other patient.	SD	MD	D	A	MA	SA
16. It is especially important to work with patients with AIDS in a caring manner.	SD	MD	D	A	MA	SA
17. A homosexual patient's partner should be accorded the same respect and courtesy as the partner of a heterosexual patient.	SD	MD	D	A	MA	SA
18. Patients with AIDS should be treated with the same respect as any other patient.	SD	MD	D	A	MA	SA
19. I am sympathetic toward the misery that people with AIDS experience.	SD	MD	D	A	MA	SA
20. I would like to do something to make life easier for people with AIDS.	SD	MD	D	A	MA	SA
21. I would do everything I could to give the best possible care to patients with AIDS.	SD	MD	D	A	MA	SA

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